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Water Resources Data for Montana
Water Year 1979

(U.S.) Geological Survey
Helena, MT

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U.S. Department of Commerce
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NTIS

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Water Resources Data for Montana

U.S. GEOLOGICAL SURVEY WATER-DATA REPORT MT-79-1

WATER YEAR 1979

Prepared in cooperation with the State of Montana
and with other agencies

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U. S. DEPARTMENT OF COMMERCE
SPRINGFIELD, VA. 22161

CALENDAR FOR WATER YEAR 1979

1978

OCTOBER

S	M	T	W	T	F	S
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1979

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U.S. DEPARTMENT OF THE INTERIOR
March 3, 1849

Water Resources Data for Montana

U.S. GEOLOGICAL SURVEY WATER-DATA REPORT MT-79-1

WATER YEAR 1979

Prepared in cooperation with the State of Montana
and with other agencies

UNITED STATES DEPARTMENT OF THE INTERIOR

CECIL D. ANDRUS, Secretary

GEOLOGICAL SURVEY

H. W. Menard, Director

For information on the water program in Montana write to
District Chief, Water Resources Division
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Drawer 10076
Helena, Montana 59601

1980

PREFACE

This report was prepared by the U.S. Geological Survey in cooperation with the State of Montana and with other agencies, by personnel of the Montana district of the Water Resources Division under the supervision of G. M. Pike, District Chief, and A. Clebsch, Jr., Regional Hydrologist, Central Region.

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Water resources data for the 1979 water year for Montana consist of records of stage, discharge, and water quality of streams; stage, contents and water quality of lakes and reservoirs; and water levels in wells.

This report contains discharge records for 226 gaging stations; stage only records for 1 lake station; stage/contents for 9 lakes and reservoirs; water quality for 137 stations, 3 lakes; water levels for 23 observation wells. Also included are 172 crest-stage partial-record stations and 43 smaller reservoirs. Additional water data were collected at various sites, not part of the systematic data collection programs, and are published as miscellaneous measurements. These data represent that part of the National Water Data System operated by the U.S. Geological Survey and cooperating State and Federal agencies in Montana.

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GAGING STATIONS, IN DOWNSTREAM ORDER, FOR WHICH RECORDS ARE PUBLISHED

(Letter after station name designates types of data: (d) discharge, (c) chemical, (b) biological, (m) microbiological, (t) water temperature, (s) sediment, (e) elevations or contents)

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WATER RESOURCES DATA FOR MONTANA, 1979

INTRODUCTION

Water resources data for the 1979 water year for Montana consist of records of stage, discharge, and water quality of streams; stage, contents, and water quality of lakes and reservoirs; and water-levels of ground-water wells. This volume contains records for water discharge at 226 gaging stations; stage only at 1 lake station; stage and contents at 9 lakes and reservoirs; water quality at 99 gaging stations, 38 water-quality stations; and 3 lake stations; and water levels at 23 observation wells. Also included are data for 172 crest-stage partial-record stations and 43 smaller reservoirs. Additional water data were collected at various sites, not involved in the systematic data collection program, and are published as miscellaneous measurements. A few pertinent stations in bordering States are also included in this report. Also, numerous stations in Canada operated for the International Joint Commission under cooperative agreement with the U.S. Department of State are included in the above. Locations of gaging stations are shown in figure 3, ground-water observation wells are shown on figure 4, and water-quality stations are shown on figure 4. These data represent that part of the National Water Data System collected by the U.S. Geological Survey and cooperating State and Federal agencies in Montana.

Records of discharge or stage of streams, and contents or stage of lakes and reservoirs were first published in a series of U.S. Geological Survey water-supply papers entitled "Surface Water Supply of the Unites States." Through September 30, 1960, these water-supply papers were in an annual series and then in a 5-year series for 1961-65 and 1966-70. Records of chemical quality, water temperatures, and suspended sediment were published from 1941 to 1970 in an annual series of water-supply papers entitled "Quality of Surface Waters of the United States." Records of ground-water levels were published from 1935 to 1974 in a series of water-supply papers entitled "Ground-Water Levels in the United States." Water-supply papers may be consulted in the libraries of the principal cities of the United States or may be purchased from Branch of Distribution, U.S. Geological Survey, 1200 South Eads Street, Arlington, VA 22202.

For water years 1961 through 1974, streamflow data were released by the Geological Survey in annual reports on a State-boundary basis. Water-quality records beginning with the 1964 water year, and ground-water data since the 1971 water year have been similarly released either in separate reports or in conjunction with streamflow records.

Beginning with the 1975 water year, water data for streamflow, water quality, and ground water are published in official Survey reports on a State-boundary basis. These official Survey reports carry an identification number consisting of the two-letter State abbreviation, the last two digits of the water year, and the volume number. For example, this volume is identified as "U.S. Geological Survey Water-Data Report MT-79-1". For archiving and general distribution, the reports for water years 1971-74 are also identified as water-data reports. These water-data reports are for sale, in paper copy or in microfiche by the National Technical Information Service, U.S. Department of Commerce, Springfield, VA 22161.

Additional information, including current prices, for ordering specific reports may be obtained from the district chief at the address given on the back of the title page or by telephone (406) 449-5263.

COOPERATION

The U.S. Geological Survey and organizations of the State of Montana have had cooperative agreements for the systematic collection of streamflow records since 1906, for ground-water levels since 1964, and for water-quality records since 1946. Organizations that assisted in collecting data through cooperative agreement with the Survey are:

Montana Department of Natural Resources and Conservation
T. J. Doney, director

Montana State Highway Commission
R. P. Richards, director of highways

Montana Department of Fish, Wildlife, and Parks
Keith L. Colbo, director

Montana Department of Health and Environmental Sciences
Dr. A. C. Knight, director

Montana State University
J. Jutila, vice-president for research

Montana Bureau of Mines and Geology
S. L. Groff, director

Assistance in the form of funds or services was given by the Department of State, in collecting records published in this report for 46 gaging stations and 4 water-quality stations, by the Corps of Engineers, U.S. Army, for 23 gaging stations and 9 water-quality stations; by the Bureau of Land Management, U.S. Department of the Interior, for 9 gaging stations and 2 water-quality stations; by the Environmental Protection Agency for 12 water-quality stations; by the Water and Power Resources Services, U.S. Department of the Interior, for 8 gaging stations; and the Bonnevile Power Administration, U.S. Department of the Interior for 3 gaging stations and 2 water-quality stations.

The following organizations aided in collecting records:

The Montana Power Company, The Washington Power Company, Pacific Power and Light Company, and the City of Helena.

On waters adjacent to the international boundary, certain gaging stations are maintained by the United States (or Canada) under agreement with Canada (or the United States) and the records are obtained and compiled in a manner equally acceptable in both countries. Those stations are designated herein as "International gaging stations."

Organizations that supplied data are acknowledged in station descriptions.

Some records have been collected and computed by contractors in accordance with U.S. Geological Survey specifications and under Geological Survey quality control.

ACKNOWLEDGMENT

Montana district personnel who contributed significantly to the collection and preparation of the data in this report were: R. R. Shields, chief, Hydrologic Surveillance and Analysis Section, assisted by J. H. Diamond, M. K. White, J. R. Knapton, M. M. Hiner, C. O. Geiger, L. A. Merritt, L. L. Hull, E. J. Blank, K. L. Tangen, and N. B. Melcher.

HYDROLOGIC CONDITIONS

Annual streamflow for the 1979 water year was near to slightly below normal for all reporting index stations in Montana. At the beginning of the water year all surface-water stations were recording flows in the normal range of between 80 to 120 percent of average.

A severe winter storm in early November that was accompanied by unseasonably cold temperatures reduced streamflow in the western portion of the state to below normal flows for this time of the year. Below average temperatures continued throughout the winter months and most of the State's streamflow remained in the below normal range.

Melting of the prairie snowpack due to above normal temperatures near the end of March was responsible for increasing the monthly average streamflow into the normal to above normal range. Streamflow through the month of May remained in the normal to above normal range east of the Continental Divide and slightly below normal in the areas west of the Continental Divide.

With the low elevation snowpack gone and the high elevation snowpack radically depleted and contributing little runoff to the State's streams, streamflow dropped into the below normal range in June and remained there throughout the State for the remainder of the water year.

Contents in all major hydroelectric reservoirs began and ended the water year in the normal range. Fort Peck Lake, in northeastern Montana, had monthend contents in the above average range for 15 consecutive months before receding into the normal range in July. The monthend contents for March and April were the highest for the period of record, 1937 to present.

Monthend contents of the State's irrigation reservoirs remained near normal through July. In August with irrigation demands at their highest and streamflow below normal, levels of these reservoirs dropped sharply.

Ground-water levels in observation wells for the water year were about average. New month-end minimums were reported at a well in Hamilton for the month of January and at a well in Missoula for the months of August and September.

DEFINITION OF TERMS

Terms related to streamflow, water-quality, and other hydrologic data, as used in this report are defined below. See also the table for converting Inch-Pound units to International System of units (SI) on the inside of the back cover.

Acre-foot (AC-FT, acre-ft) is the quantity of water required to cover 1 acre to a depth of 1 foot and is equivalent to 43,560 cubic feet or about 326,000 gallons or 1,233 cubic meters.

Algae are mostly aquatic single-celled, colonial, or multi-celled plants, containing chlorophyll and lacking roots, stems, and leaves.

Aquifer is a geologic formation, group of formations, or part of a formation that contains sufficient saturated permeable material to yield significant quantities of water to wells and springs.

Artesian means confined and is used to describe a well in which the water level stands above the top of the aquifer, tapped by the well. A flowing artesian well is one in which the water level is above the land surface.

Bacteria are microscopic unicellular organisms, typically spherical, rodlike, or spiral and threadlike in shape, often clumped into colonies. Some bacteria cause disease, others perform an essential role in nature in the recycling of materials; for example, by decomposing organic matter into a form available for reuse by plants.

Total coliform bacteria are a particular group of bacteria that are used as indicators of possible sewage pollution. They are characterized as aerobic or faculative anaerobic, gram-negative, nonspore-forming, rod-shaped bacteria which ferment lactose with gas formation within 48 hours at 35°C. In the laboratory these bacteria are defined as the organisms which produce colonies within 24 hours when incubated at 35°C ± 1.0°C on M-Endo medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

Fecal coliform bacteria are bacteria that are present in the intestines or feces of warm-blooded animals. They are often used as indicators of the sanitary quality of the water. In the laboratory they are defined as all organisms which produce blue colonies within 24 hours when incubated at 44.5°C ± 0.2°C on M-FC medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

Fecal streptococcal bacteria are bacteria found also in intestines of warm-blooded animals. Their presence in water is considered to verify fecal pollution. They are characterized as gram-positive, cocci bacteria which are capable of growth in brain-heart infusion broth. In the laboratory they are defined as all the organisms which produce red or pink colonies within 48 hours at 35°C ± 1.0°C on M-enterrococcus medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

Bed material is the unconsolidated material of which streambed, lake, pond, reservoir, or estuary bottom is composed.

Biochemical oxygen demand (BOD) is a measure of the quantity of dissolved oxygen, in milligrams per liter, necessary for the decomposition of organic matter by microorganisms, such as bacteria.

Biomass is the amount of living matter present at any given time, expressed as the mass per unit area or volume of habitat.

Ash mass is the mass or amount of residue present after the residue from the dry mass determination has been ashed in a muffle furnace at a temperature of 500°C for 1 hour. The ash mass valued of zooplankton and phytoplankton are expressed in grams per cubic meter (g/m^3), and periphyton and benthic organisms in grams per square meter (g/m^2).

Dry mass refers to the mass of residue present after drying in an oven at 60°C for zooplankton and 105°C for periphyton, until the mass remains unchanged. This mass represents the total organic matter, ash and sediment, in the sample. Dry mass values are expressed in the same units as ash mass.

Organic mass or volatile mass of the living substance is the difference between the dry mass and ash mass, and represents the actual mass of the living matter. The organic mass is expressed in the same units as for ash mass and dry mass.

Bottom material: See Bed material.

Cells/volume refers to the number of cells of any organism which is counted by using a microscope and grid or counting cell. Many planktonic organisms are multicelled and are counted according to the number of contained cells per sample, usually milliliters (mL) or liters (L).

Cfs-day is the volume of water represented by flow of 1 cubic foot per second for 24 hours. It is equivalent to 86,400 cubic feet, approximately 1.9835 acre-feet, about 646,000 gallons or 2,447 cubic meters.

Chemical oxygen demand (COD) is a measure of the chemically oxidizable material in the water, and furnishes an approximation of the amount of organic and reducing material present. The determined value may correlate with natural water color or with carbonaceous organic pollution from sewage or industrial wastes.

Chlorophyll refers to the green pigments of plants. Chlorophyll a and b are the two most common pigments in plants.

Color unit is produced by one milligram per liter of platinum in the form of the chloroplatinate ion. Color is expressed in units of platinum-cobalt scale.

Contents is the volume of water in a reservoir or lake. Unless otherwise indicated, volume is computed on the basis of a level pool and does not include bank storage.

Control designates a feature downstream from the gage that determines the stage-discharge relation at the gage. This feature may be a natural constriction of the channel, an artifical structure, or a uniform cross section over a long reach of the channel.

Control structure as used in this report is a structure on a stream or canal that is used to regulate the flow or stage of the stream or to prevent the intrusion of salt water.

Cubic feet per second per square mile (CFSM) is the average number of cubic feet of water flowing per second from each square mile of area drained, assuming that the runoff is distributed uniformly in time and area.

Cubic foot per second (FT^3/s, ft^3/s) is the rate of discharge representing a volume of 1 cubic foot passing a given point during 1 second and is equivalent to approximately 7.48 gallons per second or 448.8 gallons per minute or 0.02832 cubic meters per second.

Discharge is the volume of water (or more broadly, volume of fluid plus suspended sediment) that passes a given point within a given period of time.

Instantaneous discharge is the discharge at a particular instant of time.

Mean discharge (MEAN) is the arithmetic mean of individual daily mean discharges during a specific period.

Dissolved is that material in a representative water sample which passes through a 0.45µm membrane filter. This is a convenient operational definition used by Federal agencies that collect water data. Determinations of "dissolved" constituents are made on subsamples of the filtrate.

Diversity index is a numerical expression of evenness of distribution of aquatic organisms. The formula for diversity index is:

$$\bar{d} = \sum_{i=1}^{s} \frac{n_i}{n} \log_2 \frac{n_i}{n}$$

where n_i is the number of individuals per taxon, n is the total number of individuals, and s is the total number of taxa in the sample of the community. Diversity index values range from zero, when all the organisms in the samples are the same, to some positive number, when some or all the organisms in the sample are different.

Drainage area of a stream at a specific location is that area, measured in a horizontal plane, enclosed by a topographic divide from which direct surface runoff from precipitation normally drains by gravity into the river above the specified point. Figures of drainage area given herein include all closed basins, or noncontribution areas, within the area unless otherwise noted.

Drainage basin is a part of the surface of the earth that is occupied by a drainage system, which consists of a surface stream or a body of impounded surface water together with all tributary surface streams and bodies of impounded surface water.

Gage height (G.H.) is the water-surface elevation referred to some arbitrary gage datum. Gage height is often used interchangeably with the more general term "stage," although gage height is more appropriate when used with a reading on a gage.

Gaging station is a particular site on a stream, canal, lake, or reservoir where systematic observations of hydrologic data are obtained.

Hardness of water is a physical-chemical characteristic that is commonly recognized by the increased quantity of soap required to produce lather. It is attributable to the presence of alkaline earths (principally calcium and magnesium) and is expressed as equivalent calcium carbonate ($CaCO3$).

Hydrologic unit is a geographic area representing part or all of a surface drainage basin or distinct hydrologic feature as delineated by the Office of Water Data Coordination on the State Hydrologic Unit Map; each hydrologic unit is identified by an 8-digit number.

Micrograms per gram (µg/g) is a unit expressing the concentration of a chemical element as the mass (micrograms) of the element sorbed per unit mass (gram) of sediment.

Micrograms per liter (UG/L, µg/L) is a unit expressing the concentration of chemical constituents in solution as mass (micrograms) of solute per unit volume (liter) of water. One thousand micrograms per liter is equivalent to one milligram per liter.

Milligrams per liter (MG/L, mg/L) is a unit for expressing the concentration of chemical constituents in solution. Milligrams per liter represent the mass of solute per unit volume (liter) of water. Concentration of suspended sediment also is expressed in mg/L, and is based on the mass of sediment per liter of water-sediment mixture.

National Geodetic Vertical Datum of 1929 (NGVD) is a geodetic datum derived from a general adjustment of the first order level nets of both the United States and Canada. It was formerly called "Sea Level Datum of 1929" or "mean sea level" in this series of reports. Although the datum was derived from the average sea level over a period of many years at 26 tide stations along the Atlantic, Gulf of Mexico, and Pacific Coasts, it does not necessarily represent local mean sea level at any particular place.

Organism is any living entity, such as an insect, phytoplanter, or zooplankter.

Organism count/area refers to the number of organisms collected and enumerated in a sample and adjusted to the number per area habitat, usually square meters (m^2), acres, or hectares. Periphyton, benthic organisms, and macrophytes are expressed in these terms.

Organism count/volume refers to the number of organisms collected and enumerated in a sample and adjusted to the number per sample volume, usually milliters (mL) or liters (L). Numbers of planktonic organisms can be expressed in these terms.

Total organism count is the total number of organisms collected and enumerated in any particular sample.

Partial-record station is a particular site where limited streamflow and/or water-quality data are collected systematically over a period of years for use in hydrologic analyses.

Particle-size is the diameter, in millimeters (mm), of suspended sediment or bed material determined by either sieve or sedimentation methods. Sedimentation methods (pipet, bottom-withdrawal tube, visual-accumulation tube) determine fall diameter of particles in either distilled water (chemically dispersed) or in native water (the river water at the time and point of sampling).

Particle-size classification used in this report agrees with recommendations made by the American Geophysical Union Subcommittee on Sediment Terminology. The classification is as follows:

Classification	Size (mm)	Method of analysis
Clay	0.00024 - 0.004	Sedimentation.
Silt	.004 - .062	Sedimentation.
Sand	.062 - 2.0	Sedimentation or sieve.
Gravel	2.0 - 64.0	Sieve.

The particle-size distributions given in this report are not necessarily representative of all particles in transport in the stream. Most of the organic material is removed and the sample is subjected to mechanical and chemical dispersion before analysis in distilled water. Chemical dispersion is not used for native water analysis.

Percent composition is a unit for expressing the ratio of a particular part of a sample or population to the total sample or population, in terms of types, numbers, mass or volume.

Periphyton are microorganisms attached to and growing upon solid surfaces. While primarily consisting of algae, the periphyton also include bacteria, fungi, protozoa, rotifers, and other small organisms. Periphyton are useful indicators of water quality.

Pesticides are chemical compounds used to control undesirable plants and animals. Major categories of pesticides include insecticides, miticides, fungicides, herbicides, and rodenticides. Insecticides and herbicides, which control insects and plants respectively, are the two categories reported.

Picocurie (PC, pCi) is one trillionth (1×10^{-12}) of the amount of radioactivity represented by a curie (Ci). A curie is the amount of radioactivity that yields 3.7×10^{10} radioactive disintegrations per second. A picocurie yields 2.22 dpm (disintegrations per minute).

Plankton is the community of suspended, floating or weakly swimming organisms that live in the open water of lakes and rivers.

Phytoplankton is the plant part of the plankton. They are usually microscopic and their movement is subject to the water currents. Phytoplankton growth is dependent upon solar radiation and nutrient substances. Because they are able to incorporate as well as release materials to the surrounding water, the phytoplankton have a profound effect upon the quality of the water. They are the primary food producers in the aquatic environment, and are commonly known as algae.

Blue-green algae are a group of phytoplankton organisms having a blue pigment, in addition to the green pigment called chlorophyll. Blue-green algae often cause nuisance conditions in water.

Diatoms are the unicellular or colonial algae having a siliceous shell. Their concentrations are expressed as number of cells/mL of sample.

Green algae have chlorophyll pigments similar in color to those of higher green plants. Some forms produce algal mats of floating "moss" in lakes. Their concentrations are expressed as number of cells/mL of sample.

Zooplankton is the animal part of the plankton. Zooplankton are capable of extensive movements within the water column, and are often large enough to be seen with the unaided eye. Zooplankton are secondary consumers feeding upon bacteria, phytoplankton, and detritus. Because they are the grazers in the aquatic environment, the zooplankton are a vital part of the aquatic food web. The zooplankton community is dominated by small crustaceans and rotifers.

Polychlorinated biphenyls (PCBs) are industrial chemicals that are mixtures of chlorinated biphenyl compounds having various percentages of chlorine. They are similar in structure to organochlorine insecticides.

Primary productivity is a measure of the rate at which new organic matter is formed and accumulated through photosynthetic and chemosynthetic activity of producer organisms (chiefly green plants). The rate of primary production is estimated by measuring the amount of oxygen released (oxygen method) or the amount of carbon assimilated by the plants (carbon method).

Milligrams of carbon per area per unit time (mg C/m^2.time) for phytoplankton are units for expressing primary productivity. They define the amount of carbon dioxide consumed as measured by radioactive carbon (carbon 14). The carbon 14 method is of greater sensitivity than the oxygen light and dark bottle method, and is preferred for use in unenriched waters. Unit time may be either the hour or day, depending on the incubation period.

Recoverable from bottom material is the amount of a given constituent that is in solution after a representative sample of bottom material has been digested by a method (usually using an acid or mixture of acids) that results in dissolution of only readily soluble substances. Complete dissoultion of all bottom material is not achieved by the digestion treatment and thus the determination represents less than the total amount (that is, less than 95 percent) of the constituent in the sample. To achieve comparability of analytical data, equivalent digestion procedures would be required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

Runoff in inches (IN, in) shows the depth to which the drainage area would be covered if all the runoff for a given time period were uniformly distributed on it.

Sediment is solid material that originates mostly from disintegrated rocks and is transported by, suspended in, or deposited from water; it includes chemical and biochemical precipitates and decomposed organic material, such as humus. The quantity, characteristics, and cause of the occurrence of sediment in streams are influenced by environmental factors. Some major factors are degree of slope, length of slope, soil characteristics, land usage, and quantity and intensity of precipitation.

Mean concentration is the time-weighted concentration of suspended sediment passing a stream section during a 24-hour day.

Suspended sediment is the sediment that at any given time is maintained in suspension by the upward components of turbulent currents or that exists in suspension as a colloid.

Suspended-sediment concentration is the velocity-weighted concentration of suspended sediment in the sampled zone (from the water surface to a point approximately 0.3 ft above the bed) expressed as milligrams of dry sediment per liter of water-sediment mixture (mg/L).

Suspended-sediment discharge (tons/day) is the rate at which dry weight of sediment passes a section of a stream or is the quantity of sediment, as measured by dry weight or volume, that passes a section in a given time. It is computed by multiplying discharge times mg/L times 0.0027.

Suspended-sediment load is quantity of suspended sediment passing a section in a specified period.

Sodium-adsorption-ratio (SAR) is the expression of relative activity of sodium ions in exchange reactions with soil and is an index of sodium or alkali hazard to the soil. Waters range in respect to sodium hazard from those which can be used for irrigation on almost all soils to those which are generally unsatisfactory for irrigation.

Solute is any substance derived from the atmosphere, vegetables, soil, or rocks that is dissolved in water.

Specific conductance is a measure of the ability of water to conduct an electrical current. It is expressed in micromhos per centimeter at 25°C. Specific conductance is related to the type and concentration of ions in solution and can be used for approximating the dissolved-solids content of the water. Commonly, the concentration of dissolved solids (in milligrams per liter) is about 65 percent of the specific conductance (in micromhos). This relation is not constant from stream to stream, and it may vary in the same source with changes in the composition of the water.

Stage-discharge relation is the relation between gage height (stage) and volume of water per unit of time, flowing in a channel.

Streamflow is the discharge that occurs in a natural channel. Although the term "discharge" can be applied to the flow of a canal, the word "streamflow" uniquely describes the discharge in a surface stream course. The term "streamflow" is more general than "runoff" as streamflow may be applied to discharge whether or not it is affected by diversion or regulation.

Substrate is the physical surface upon which an organism lived.

Artificial substrate is a device which is purposely placed in a stream or lake for colonization of organisms. The artifical substrate simplifies the community structure by standardizing the substrate from which each sample is taken. Examples of artificial substrates are basket samplers (made of wire cages filled with clean streamside rocks) and multiplate samplers (made of hardboard) for benthic organism collection, and plexiglass strips for periphyton collection.

Surface area of a lake is that area outlined on the latest U.S.G.S. topographic map as the boundary of the lake and measured by a planimeter in acres. In localities not covered by topographic maps, the areas are computed from the best maps available at the time planimetered. All areas shown are those for the stage when the planimetered map was made.

Surficial bed material is the part (0.1 to 0.2 ft) of the bed material that is sampled using U.S. Series Bed-Material Samplers.

Suspended, recoverable is the amount of a given constituent that is in solution after the part of a representative water-suspended sediment sample that is retained on a 0.45 μm membrane filter has been digested by a method (usually using a dilute acid solution) that results in dissolution of only readily soluble substances. Complete dissolution of all the particulate matter is not achieved by digestion treatment and thus the determination represents something less than the "total" amount (that is, less than 95 percent) of the constituent present in the sample. To achieve comparability of analytical data, equivalent digestion procedures would be required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

Determination of "suspended, recoverable" constituents are made either by analyzing portions of the material collected on the filter or, more commonly, by difference, based on determinations of (1) dissolved and (2) total recoverable concentrations of the constituent.

Suspended, total is the total amount of a given constituent in the part of a representative water-suspended sample that is retained on a 0.45 μm membrane filter. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent determined. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to determine when the results should be reported as "suspended, total."

Determination of "suspended, total" constituents are made either by analyzing portions of material collected on the filter or, more commonly, by difference, based on determinations of (1) dissolved and (2) total concentrations of the constituent.

Taxonomy is the division of biology concerned with the classification and naming of organisms. The classification of organisms is based upon a hierarchical scheme beginning with Kingdom and ending with Species at the base. The higher the classification level, the fewer features the organisms have in common. For example, the taxonomy of a particular mayfly, Hexagenia limbata is the following:

Kingdom	Animal
Phylum	Arthropoda
Class	Insecta
Order	Eohemeroptera
Family	Ephemeridae
Genus	Hexageria
Species	Hexagenia limbata

Thermograph is a thermometer that continuously and automatically records, on a chart, the water temperature of a stream. "Temperature recorder" is the term used to indicate the presence of a thermograph or a digital mechanism that records water temperature in a digital format on punched paper tape.

Time-weighted average is computed by multiplying the number of days in the sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the total number of days. A time-weighted average represents the composition of water that would be contained in a vessel or reservoir that had received equal quantities of water from the stream each day for the year.

Tons per acre-foot indicates the dry mass of dissolved solids in 1 acre-foot of water. It is computed by multiplying the concentration in milligrams per liter by 0.00136.

Tons per day is the quantity of substance in solution or suspension that passes a stream section during a 24-hour day.

Total is the total amount of a given constituent in a representative water-suspended sediment sample, regardless of the constituent's physical or chemical form. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent present in both the dissolved and suspended phases of the sample. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to judge when the results should be reported as "total." (Note that the word "total" does double duty here, indicating both that the sample consists of a water-suspended sediment mixture and that the analytical method determines all of the constituent in the sample).

Total in bottom material is the total amount of a given constituent in a representative sample of bottom material. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent determined. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to judge when the results should be reported as "total in bottom material."

Total load (tons) is the total quantity of any individual constituent, as measured by dry mass or volume, that is dissolved in a specific amount of water (discharge) during a given time. It is computed by multiplying the total discharge, times the mg/L of the constituent, times the factor 0.0027, times the number of days.

Total, recoverable is the amount of a given constituent that is in solution after a representative water-suspended sediment sample has been digested by a method (usually using a dilute acid solution) that results in dissolution of only readily soluble substances. Complete dissolution of all particulate matter is not achieved by the digestion treatment, and thus the determination represents something less than the "total" amount (that is, less than 95 percent) of the constituent present in the dissolved and suspended phases of the sample. To achieve comparability of analytical data, equivalent digestion procedures would be required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

Turbidity of a sample is the reduction of transparency due to the presence of particulate matter. In this report it is expressed in Nephelometric turbidity units (NTU), obtained from the Nephelometric method for turbidity determination which measures the intensity of light scattered by suspended particles at 90 degrees from the path of an incident light source.

Weighted average is used in this report to indicate discharge-weighted average. It is computed by multiplying the discharge for a sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the sum of the discharges. A discharge-weighted average approximates the composition of water that would be found in a reservoir containing all the water passing a given location during the water year after thorough mixing in the reservoir.

WRD is used as an abbreviation for "Water-Resources Data" in the REVISED RECORDS paragraph to refer to State annual basic-data reports published before 1975.

WSP is used as an abbreviation for "Water-Supply Paper" in references to previously published reports.

DOWNSTREAM ORDER AND STATION NUMBER

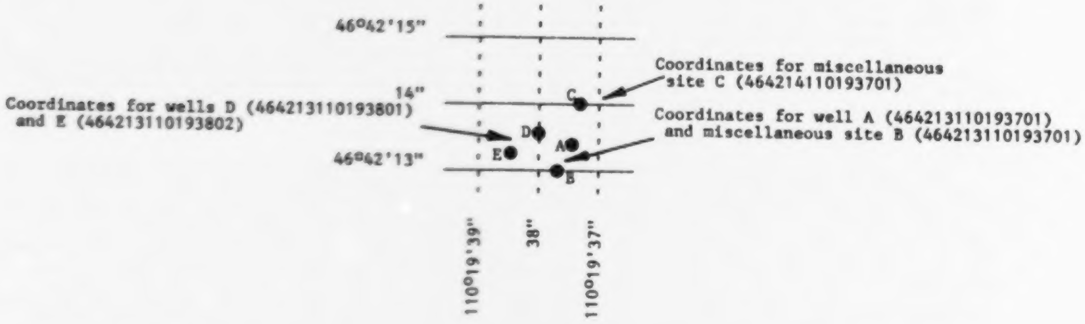
Since October 1, 1950, the order of listing hydrologic-station records in Survey reports is in a downstream direction along the main stream. All stations on a tributary entering upstream from a main-stream station are listed before that station. A station on a tributary that enters between two main-stream stations is listed between them. A similar order is followed in listing stations on first rank, second rank, and other ranks of tributaries. The rank of any tributary on which a station is situated, with respect to the stream to which it is immediately tributary, is indicated by an indention in a list of stations in the front of the report. Each indention represents one rank. This downstream order and system of indention show which stations are on tributaries between any two stations and the rank of the tributary on which each station is situated.

As an added means of identification, each hydrologic station and partial-record station has been assigned a station number. These are in the same downstream order used in this report. In assigning station numbers, no distinction is made between partial-record stations and other stations; therefore, the station number for a partial-record station indicates downstream order position in a list made up of both types of stations. Gaps are left in the series of numbers to allow for new stations that may be established; hence, the numbers are not consecutive. The complete 8-digit number for each station, such as 06090500, which appears just to the left of the station name includes the 2-digit part number "06" plus the 6-digit, downstream order number "090500." In this report, the records are listed in downstream order by parts. The part number refers to an area whose boundaries coincide with certain natural drainage lines. Records in this report are in Part 5 (Hudson Bay basin), Part 6 (Missouri River basin) and Part 12 (Upper Columbia River basin). All records for a drainage basin encompassing more than one State can be arranged in downstream order by assembling pages from the various State reports by station number to include all records in the basin.

NUMBERING SYSTEM FOR WELLS AND MISCELLANEOUS SITES

The 8-digit downstream order station numbers are not assigned to wells and miscellaneous sites where only random water-quality samples or discharge measurements are taken.

The well and miscellaneous site numbering system of the U.S. Geological Survey is based on the grid system of latitude and longitude. The system provides the geographic location of the well or miscellaneous site and a unique number for each site. The number consists of 15 digits. The first 6 digits denote the degrees, minutes, and seconds of latitude, the next 7 digits denote degrees, minutes, and seconds of longitude, and the last 2 digits (assigned sequentially) identify the wells or other sites within a 1-second grid. See figure 1 on following page.



Coordinates for miscellaneous site C (464214110193701)

Coordinates for wells D (464213110193801) and E (464213110193802)

Coordinates for well A (464213110193701) and miscellaneous site B (464213110193701)

Figure 1. System for numbering wells and miscellaneous sites (latitude and longitude)

SPECIAL NETWORKS AND PROGRAMS

Hydrologic bench-mark station is one that provides hydrologic data for a basin in which the hydrologic regimen will likely be governed solely by natural conditions. Data collected at a bench-mark station may be used to separate effects of natural from manmade changes in other basins which have been developed and in which the physiography, climate, and geology are similar to those in the undeveloped bench-mark basin. Stations in this network are listed below:

05014500	Swiftcurrent Creek at Many Glacier, MT
06169500	Rock Creek below Horse Creek at international boundary

National stream-quality accounting network (NASQAN) is a data collection network designed by the U.S. Geological Survey to meet many of the information demands of agencies or groups involved in national or regional water-quality planning and management. Both accounting and broad-scale monitoring objectives have been incorporated into the network design. A real configuration of the network is based on river-basin accounting units (identified by 8-digit hydrologic-unit numbers) designated by the Office of Water Data Coordination in consultation with the Water Resources Council. Primary objectives of the network are (1) to depict areal variability of streamflow and water-quality conditions nationwide on a year-by-year basis and (2) to detect and assess long-term changes in streamflow and stream quality. Stations in this network are listed below:

05020500	St. Mary River at international boundary
06054500	Missouri River at Toston, MT
06101500	Marias River near Chester, MT
06109500	Missouri River at Virgelle, MT
06115200	Missouri River near Landusky, MT
06130500	Musselshell River at Mosby, MT
06132000	Missouri River below Fort Peck Dam
06174500	Milk River at Nashua, MT
06185500	Missouri River near Culbertson, MT
06214500	Yellowstone River at Billings, MT
06294700	Bighorn River at Bighorn, MT
06308500	Tongue River at Miles City, MT
06326500	Powder River near Locate, MT
06329500	Yellowstone River near Sidney, MT
12355000	Flathead River at Flathead, British Columbia
12363000	Flathead River at Columbia Falls, MT

Pesticide program is a network of regularly sampled water-quality stations where samples are collected to determine the concentration and distribution of pesticides in streams where potential contamination could result from the application of the commonly used insecticides and herbicides. Operation of the network is a Federal interagency activity.

Radiochemical program is a network of regularly sampled water-quality stations where samples are collected to be anlyzed for radioisotopes. The streams that are sampled represent major drainage basins in the conterminous United States.

EXPLANATION OF STAGE AND WATER-DISCHARGE RECORDS

The base data collected at gaging stations consist of records of stage and measurements of discharge of streams or canals, and stage, surface area, and contents of lakes or reservoirs. In addition, observation of factors affecting the stage-discharge relation or the stage-capacity relation, weather records, and other information are used to supplement base data in determining the daily flow or volume of water in storage. Records of stage are obtained from either direct readings on a nonrecording gage or from a water-stage recorder that gives either a continuous graph of the fluctuations or a tape punched at selected time intervals. Measurements of discharge are made with a current meter, using the general methods adopted by the Geological Survey. These methods are described in standard textbooks, in Water-Supply Paper 888, and in U.S. Geological Survey Techniques of Water Resources Investigations, book 3, chapter A6.

For stream-gaging stations, rating tables giving the discharge for any stage are prepared from stage-discharge relation curves. If extensions to the rating curves are necessary to express discharge greater than measured, they are made on the basis of indirect measurements of peak discharge (such as slope-area or contracted-opening measurements, computation of flow over dams or weirs), step-backwater techniques, velocity-area studies, and logarithmetic plotting. The daily mean discharge is computed from gage heights and rating tables, then the monthly and yearly mean discharges are computed from the daily figures. If the stage-discharge relation is subject to change because of frequent or continual change in the physical features that form the control, the daily mean discharge is computed by the shifting-control method, in which correction factors based on individual discharge measurements and notes by engineers and observers are used in applying the gage heights to the rating tables. If the stage-discharge relation for a station is temporarily changed by the presence of aquatic growth or debris on the control, the daily mean discharge is computed by what is basically the shifting-control method.

At some stream-gaging stations the stage-discharge relation is affected by backwater from reservoirs, tributary streams, or other sources. This necessitates the use of the slope method, in which the slope or fall in a reach of the stream is a factor in computing discharge. The slope or fall is obtained by means of an auxiliary gage set at some distance from the base gage. At some stations the stage-discharge relation is affected by changing stage; at these stations the rate of change in stage is used as a factor in computing discharge.

At some stream-gaging stations in Montana the stage-discharge relation is usually affected by ice from November to March, and it becomes impossible to compute the discharge in the usual manner. Discharge for periods of ice effect is computed on the basis of gage-height record and occasional winter discharge measurements. Consideration is given to the available information on temperature and precipitation, notes by gage observers and hydrologists, and comparable records of discharge for other stations in the same or nearby basins.

For a lake or reservoir stations, capacity tables giving the contents for any stage are prepared from stage-area relation curves defined by surveys. The application of the stage to the capacity table gives the contents, from which the daily, monthly, or yearly change in contents is computed.

If the stage-capacity curve is subject to changes because of depositon of sediment in the reservoir, periodic resurveys of the reservoir are necessary to define new stage-capacity curves. During the period between reservoir surveys, the computed contents may be increasingly in error due to the gradual accumulation of sediment.

For some gaging stations there are periods when no gage-height record is obtained or the recorded gage height is so faulty that it cannot be used to compute daily discharge or contents. This happens when the recorder stops or otherwise fails to operate properly, intakes are plugged, the float is frozen in the well, or for various other reasons. For such periods the daily discharges are estimated on the basis of recorded range in stage, prior and subsequent records, discharge measurements, weather records, and comparison with records for other stations in the same or nearby basins. Likewise daily contents may be estimated on the basis of operator's log, prior and subsequent records, inflow-outflow, and other information.

The data in this report generally comprise a description of the station and tabulations of daily and monthly figures. For gaging station on streams or canals, a table showing the daily discharge and monthly and yearly discharge is given. For gaging station on lakes and reservoirs, a monthly summary table of stage and contents or a table showing the daily contents is given. Tables of daily mean gage heights are included for some streamflow stations and for some reservoir stations. Records are published for the water year, which begins on October 1 and ends on September 30. Records for some gaging stations on streams or canals in Canada and along the international boundary are published on an irrigation season basis and the tables of daily discharge generally show data from March through October. A calendar for the current water year is shown on the reverse side of the back cover to facilitate finding the day of the week for any date.

The description of the gaging station gives the location, draingage area, period of record, notations of revision of previously published records, type and history of gages, general remarks, average discharge, and extremes of discharge or contents. The location of the gaging station and the drainage area are obtained from the most accurate maps available. River mileage, given under "LOCATION" for some stations, is that determined and used by the Corps of Engineers or other agencies. Periods for which there are published records for the present station or for stations generally equivalent to the present one are given under "PERIOD OF RECORD."

Previously published streamflow records of some stations have been found to be in error on the basis of data or information later obtained. Revisions of such records are usually published along with the current records in one of the annual or compilation reports. In order to make it easier to find such revised records, a paragraph headed "REVISED RECORDS" has been added to the description of all stations for which revised records have been published. Listed therein are all the reports in which revisions have been published, each followed by the water years for which figures are revised in that report. In listing the water years, only one number is given; for instance, 1965 stands for the water year October 1, 1964 to September 30, 1965. If no daily, monthly, or annual figures of discharge are affected by the revision, the fact is brought out by notations after the year dates as follows: "(M)" means that only the instantaneous maximum discharge was revised; "(m)" that only the instantaneous minimum was revised; and "(P)" that only peak discharges were revised. If the drainage area has been revised, the report in which the revised figure was first published is given. It should be noted that for all stations for which cubic feet per second per square mile and runoff in inches are published, a revision of the drainage area necessitates corresponding revision of all figures based on the drainage area. Revised figures of cubic feet per second per square mile and runoff in inches resulting from a revision of the drainage area only are usually not published in the annual series of reports.

The type of gage currently in use; the datum of the present gage referred to National Geodetic Vertical Datum; and a condensed history of the types, locations, and datums of previous gages used during the period of record are given under "GAGE." National Geodetic Vertical Datum is explained in "DEFINITION OF TERMS" on page 2.

Information pertaining to the accuracy of the discharge records and to conditions which affect the natural flow of the gaging station is given under "REMARKS." For reservoir stations, information on the dam forming the reservoir, the capacity, outlet works and spillway, and purpose and use of the reservoir is given under "REMARKS."

The average discharge for the number of years indicated is given under "AVERAGE DISCHARGE"; it is not given for stations having fewer than 5 complete years of record or for stations where changes in water development during the period of record cause the figure to have little significance. In the "EXTREMES" paragraph, the extremes for period of record is given first, information available outside the period of record is given next, and finally, those for the current year. Unless otherwise qualified, the maximum discharge (or contents), is the instantaneous maximum corresponding to the crest stage obtained by use of a water-stage recorder (graphic or digital), a crest-stage gage, or a nonrecording gage read at the time of the crest. If the maximum gage height did not occur on the same day as the maximum discharge (or contents), it is given separately. Similarly, the minimum is the instantaneous minimum unless otherwise qualified. For some stations, peak discharges are listed with "EXTREMES FOR THE CURRENT YEAR"; if they are, all independent peaks, including the maximum for the year, above the selected base with the time of occurrence and corresponding gage heights are published in tabular format. The base discharge, which is given in the table heading is selected so that an average of about three peaks a year will be presented. Peak discharges are not published for any canals, ditches, drains, or for any stream for which the peaks are subject to substantial control by man. Time of day is expressed in 24-hour local standard time; for example, 12:30 a.m. is 0030, 1:30 p.m. is 1330. The minimums for these stations are published in a separate paragraph following the table of peaks.

The daily table for stream-gaging stations gives the mean discharge for each day and is followed by monthly and yearly summaries. In the monthly summary below the daily table, the line headed "TOTAL" gives the sum of the daily figures. The line headed "MEAN" gives the average flow in cubic feet per second during the month. The lines headed "MAX" and "MIN" give the maximum and minimum daily discharges, respectively, for the month. Discharges for the month also may be expressed in cubic feet per second per square mile (line headed "CFSM"), or in inches (line headed "IN"), or in acre-feet (line headed "AC-FT"). Figures for cubic feet per second per square mile and runoff in inches are omitted if there is extensive regulation or diversion, if the drainage area includes large noncontributing areas, or if the average annual rainfall over the drainage basin is usually less than 20 inches. In the yearly summary below the monthly summary, the figures shown are the appropriate daily discharges for the calendar and water years.

Footnotes are used to indicate periods for which the discharge is computed or estimated by special methods because of no gage-height record, backwater from various sources, or other unusual conditions. Periods of no gage-height record are indicated if the period is continuous for a month or more or includes the maximum discharge for the year. Periods of backwater from an unusual source, of indefinite stage-discharge relation, or of any other unusual condition at the gage site are indicated only if they are a month or more in length and the accuracy of the records is affected. Days on which the stage-discharge relation is affected by ice are not indicated. The methods used in computing discharge for various unusual conditions have been explained in preceding paragraphs.

For most gaging stations on lakes and reservoirs the data presented comprise a description of the station and a monthly summary table of stage and contents. For some reservoirs a table showing daily contents or stage is given. A skeleton table of capacity at given stages is published for reservoirs for which records are published on a daily basis, but is not published for reservoirs for which only monthly data are given.

Data collected at partial-record stations follow the information for continuous record sites. Data for partial-record discharge stations are presented in two tables. The first is a table of discharge measurements at low-flow partial-record stations, and the second is a table of annual maximum stage and discharge at crest-stage stations. The tables of partial-record stations are followed by a listing of discharge measurements made at sites other than continuous-record or partial-record stations. Occasionally, a series of discharge measurements are made within a short time period to investigate the seepage gains or losses along a reach of a stream or to determine the low-flow characteristics of an area. Such measurements are also given in special tables following the tables of partial-record stations.

Accuracy of Field Data and Computed Results

The accuracy of streamflow data depends primarily on (1) the stability of the stage-discharge relation or, if the control is unstable, the frequency of discharge measurements, and (2) the accuracy of observations of stage, measurements of discharge, and interpretations of records.

The station description under "REMARKS" states the degree of accuracy of the records. "Excellent" means that about 95 percent of the daily discharges are within 5 percent; "good", within 10 percent; and "fair" within 15 percent. "Poor" means that daily discharges have less than "fair" accuracy.

Figures of daily mean discharge in this report are shown to the nearest hundredth of a cubic foot per second for discharges of less than 1 cfs; to tenths between 1.0 and 10 cfs; to whole numbers between 10 and 1,000 cfs; and to 3 significant figures above 1,000 cfs. The number of significant figures used is based solely on the magnitude of the figure. The same rounding rules apply to discharge figures listed for partial-record stations.

Discharge at many stations, as indicated by the monthly mean, may not reflect natural runoff due to the effects of diversion, consumption, regulation by storage, increase or decrease in evaporation due to artificial causes, or to other factors. For such stations, figures of cubic feet per second per square mile and of runoff in inches are not published unless satisfactory adjustments can be made for diversions, for changes in contents of reservoirs, or for other changes incident to the use and control. Evaporation from a reservoir is not included in the adjustments for changes in reservoir contents, unless it is so stated. Even at those stations where adjustments are made, large errors in computed runoff may occur if adjustments or losses are large in comparison with the observed discharge.

Other Data Available

Information of a more detailed nature than that published for most of the gaging stations, such as observations of water temperatures, discharge measurements, gage-height records, and rating tables is on file in the district office. Also most gaging-station records are available in computer-usable form and many statistical analyses have been made.

Information of the availability of unpublished data or statistical analyses may be obtained from the district office.

Publications

The annual series of water-supply papers that give information on quantity of surface waters in Montana are given in the following table. Data for the Hudson Bay basin is given in Part 5, for the Missouri River basin in Part 6, and for the Upper Columbia River basin in Part 12.

Table 1.--Water-supply paper numbers containing results of stream measurements in Montana 1899-1970, including compilation reports.

Year	Part 5	Part 6	Part 12	Year	Part 5	Part 6	Part 12
1899	36	36,37	38				
1900	49	49	51,52				
1901	65,66,75	66,75	66,75	1936	805	806	812
1902	83,85	84	85	1937	825	826	832
1903	98,99,100	99	100	1938	855	856	862
1904	128,130	130	135	1939	875	876	882
1905	171	172	178	1940	895	896	902
1906	207	208	214	1941	925	926	932
1907	245	246	252	1942	955	956	962
1908	245	246	252	1943	975	976	982
1909	265	266	272	1944	1005	1006	1012
1910	285	286	292	1945	1035	1036	1042
1911	305	306	312	1946	1055	1056	1062
1912	325	326	332A	1947	1085	1086	1092
1913	355	356	362A	1948	1115	1116	1122
1914	385	386	392	1949	1145	1146	1152
1915	405	406	412	1950	1175	1176	1182
1916	435	436	442	1951	1208	1209	1216
1917	455	456	462	1952	1238	1239	1246
1918	475	476	482	1953	1278	1279	1286
1919	505	506	512	1954	1338	1339	1346
1920	505	506	512	1955	1388	1389	1396
1921	525	526	532	1956	1438	1439	1446
1922	545	546	552	1957	1508	1509	1516
1923	565	566	572	1958	1558	1559	1566
1924	585	586	592	1959	1628	1629	1636
1925	605	606	612	1960	1708	1709	1716
1926	625	626	632	1961-65	1913	1916	1933
1927	645	646	652	1966-70	2113	2116	2133
1928	665	666	672				
1929	685	686	692				
1930	700	701	707				
1931	715	716	722	1950 Compilation	1308	1309	1316
1932	730	731	737				
1933	745	746	752				
1934	760	761	767	1960 Compilation	1728	1729	1736
1935	785	786	792				

Records of Discharge Collected by Agencies Other than the Geological Survey

Records of discharge not published by the Geological Survey have been collected at numerous sites by many other Federal, State, County, City, local agencies, and by private organizations. The National Water Exchange, Water Resources Division, U.S. Geological Survey, National Center, Reston, VA 22092, maintains an index of such sites. Information on records at specific sites can be obtained upon request.

EXPLANATION OF WATER-QUALITY RECORDS

Collection and Examination of Data

Surface-water samples for analyses usually are collected at or near gaging stations. The quality-of-water records are given immediately following the discharge records at these stations.

The descriptive heading for water-quality records gives the period of record for all water-quality data; the period of daily record for parameters that are measured on a daily basis (specific conductance, water temperatures, sediment discharge, etc.); extremes for the period of daily record; extremes for the current year; and general remarks.

Water Analysis

Most methods for collecting and analyzing water samples are described in the U.S. Geological Survey Techniques of Water-Resources Investigations listed on a following page.

One sample can define adequately the water quality at a given time if the mixture of solutes throughout the stream cross section is homogeneous. However, the concentration of solutes at different locations in the cross section may vary widely with different rates of water discharge, depending on the source of material and the turbulence and mixing of the stream. Some streams must be sampled through several vertical sections to obtain a representative sample needed for an accurate mean concentration and for use in calculating load.

Chemical-quality data published in this report are considered to be the most representative values available for the stations listed. The values reported represent water-quality conditions at the time of sampling as much as possible, consistent with available sampling techniques and methods of analysis. In the rare case where an apparent inconsistency exists between a reported pH value and the relative abundance of carbon dioxide species (carbonate and bicarbonate), the inconsistency is the result of a slight uptake of carbon dioxide from the air by the sample between measurement of pH in the field and determination of carbonate and bicarbonate in the laboratory.

Water Temperature

Water temperatures are measured at most of the water-quality stations. In addition, water temperatures are taken at time of discharge measurements for water-discharge stations. Large streams have a small diurnal temperature change; shallow streams may have a daily range of several degrees and may follow closely the changes in air temperature. Some streams may be affected by waste-heat discharges.

For stations equipped with digital monitors, the records consist of daily maximum, minimum, and mean values and are based upon hourly punches beginning at 0100 hours and ending at 2400 hours for the day of record. More detailed records (hourly values) may be obtained from the district office.

At stations where recording instruments are used, either maximum and minimum temperatures, or maximum, minimum, and mean temperatures for each day are published.

Table 2.--Descriptor values for weather conditions.

0	Cloudless
1	Partly cloudy
2	Cloudy
3	Overcast
10	Precipitation within sight
13	Ugly, threatening sky
40	Fog
50	Drizzle
51	Slight drizzle, intermittent
52	Slight drizzle, continuous
53	Moderate drizzle, intermittent
54	Moderate drizzle, continuous
55	Thick drizzle, intermittent
56	Thick drizzle, continuous
57	Drizzle and fog
58	Slight or moderate drizzle and rain
59	Thick drizzle and rain
60	Rain
61	Slight rain, intermittent
62	Slight rain, continuous
63	Moderate rain, intermittent
64	Moderate rain, continuous
65	Heavy rain, intermittent
66	Heavy rain, continuous
67	Rain and fog
68	Slight or moderate mixed rain and snow
69	Heavy mixed rain and snow
70	Snow or sleet
71	Slight snow in flakes, intermittent
72	Slight snow in flakes, continuous
73	Moderate snow in flakes, intermittent
74	Moderate snow in flakes, continuous
75	Heavy snow in flakes, intermittent
76	Heavy snow in flakes, continuous
77	Snow and fog
78	Granular snow (frozen drizzles)
79	Ice crystals
80	Showers
81	Slight or moderate rain shower (s)
82	Heavy rain shower (s)
83	Slight or moderate snow shower (s)
84	Heavy snow shower (s)
85	Slight or moderate rain and snow shower (s)
86	Heavy rain and snow shower (s)
87	Granular snow shower (s)
88	Slight or moderate hail or rain and hail shower (s)
90	Thunderstorm
93	Slight thunderstorm with rain or snow
94	Slight thunderstorm with hail
95	Moderate thunderstorm with rain or snow
96	Moderate thunderstorm with hail
97	Heavy thunderstorm with rain or snow
99	Heavy thunderstorm with hail

Sediment

Suspended-sediment concentrations are determined from samples collected by using depth-integrating samplers. Samples usually are obtained at several verticals in the cross-section, or a single sample may be obtained at a fixed point and a coefficient applied to determine the mean concentration in the cross section.

During periods of rapidly changing flow or rapidly changing concentration, samples may have been collected more frequently (twice daily or, in some instances, hourly). The published sediment discharges for days of rapidly changing flow or concentration were computed by the subdivided day method (time-discharge weighted average). Therefore, for those days when the published sediment value differs from the value computed as the product of discharge times mean concentration times 0.0027, the reader can assume that the sediment discharge for that day was computed by the subdivided day method. For periods when no samples were collected, daily loads of suspended sediment were estimated on the basis of water discharge, sediment concentrations observed immediately before and after the period, and suspended-sediment loads for other periods of similar discharge.

At other stations, suspended-sediment samples were collected periodically at many verticals in the stream cross section. Although data collected periodically may represent conditions only at the time of observations, such data are useful in establishing seasonal relations between quality and streamflow in predicting long-term sediment-discharge characteristics of the stream.

In addition to the records of the quantities of suspended sediment, records of the periodic measurements of the particle-size distribution of the suspended sediment and bed material are included.

Publications

The annual series of water-supply papers that give information on quality of surface waters in Montana are shown in the following table. Data for Hudson Bay and Missouri River basins are given in parts 5-6 and data for Upper Columbia River basin are given in part 12.

Table 3.--Water-supply paper numbers and parts, water years, 1947-70.

Year	Parts 5-6	Part 12	Year	Parts 5-6	Part 12
1947	1102	----	1959	1643	1645
1948	1132	----	1960	1743	1745
1949	1162	----	1961	1883	1885
1950	1187	----	1962	1943	1945
1951	1198	1200	1963	1949	1951
1952	1251	1253	1964	1956	1959
1953	1291	1293	1965	1963	1966
1954	1351	1353	1966	1993	1996
1955	1401	1403	1967	2013	2016
1956	1451	1453	1968	2095	2100
1957	1521	1523	1969	2145	2150
1958	1572	1574	1970	2155	2160

EXPLANATION OF GROUND-WATER LEVEL RECORDS

Collection of the Data

Only ground-water level data from a basic network of observation wells are published herein. This basic network contains wells so located that the most significant data are obtained from the fewest wells in the most important aquifers.

Each well is identified by means of (1) a 15-digit number that is based on latitude and longitude and (2) a local number that is provided for local needs. See figure 1.

Measurements are made in many types of wells, under varying conditions of access and at different temperatures; hence, neither the method of measurement nor the equipment can be standardized. At each observation well, however, the equipment and techniques used are those that will ensure that measurements at each well are consistent.

Water-level measurements in this report are given in feet with reference to either National Geodetic Vertical Datum of 1929 or land-surface datum (lsd). National Geodetic Vertical Datum of 1929 is the datum plane on which the national network of precise levels is based; land-surface datum is a datum plane that is approximately at land surface at each well. If known, the altitude of the land-surface datum above National Geodetic Vertical Datum of 1929 is given in the well description. The height, or the measuring point (MP) above or below land-surface datum is given in each well description. Water levels in wells equipped with recording gages are reported for every fifth day and the end of each month (eom).

Water levels are reported to as many significant figures as can be justified by the local conditions. For example, in a measurement of a depth to water of several hundred feet, the error of determining the absolute value of the total depth to water may be a few tenths of a foot, whereas the error in determining the net change of water level between successive measurements may be only a hundredth of a few hundredths of a foot. For lesser depths to water, the accuracy is greater. Accordingly, most measurements are reported to a hundredth of a foot, but some are given only to a tenth of a foot or a larger unit.

Publications

Publication of ground-water level data for the United States in water-supply papers was begun by the Geological Survey in 1935. From 1935 through 1939, a single water-supply paper for each year covering the entire nation was issued (Water-Supply Papers--777, 817, 840, 845, and 886). From 1940 through 1974, separate water-supply papers were issued for 6 sections of the United States. Water-level data for Montana are in the water-supply papers listed in the following table, each report containing one or more calendar years (January-December) of data. Data in this report are for the 12-month water year ending September 30.

Table 4.--Water-supply paper numbers for Northwestern United States, calendar years 1940-1974

Year	WSP No.	Year	WSP No.	Year	WSP No.
1940	910	1947	1100	1954	1325
1941	940	1948	1130	1955	1408
1942	948	1949	1160	1956-60	1760
1943	990	1950	1169	1961-65	1845
1944	1020	1951	1195	1966-70	1980
1945	1927	1952	1225	1971-74	2161
1946	1075	1953	1269		

Information about reports and other data on ground water in Montana may be obtained from the district office, at the address given on the back of the title page.

PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS

Thirty-four manuals by the U.S. Geological Survey have been published to date in the series on techniques describing procedures for planning and executing specialized work in water-resources investigations. The material is grouped under major subject headings called books and is further divided into sections and chapters. For example, Section A of Book 3 (Applications of Hydraulics) is on surface water. The chapter, the unit of publication, is limited to a narrow field of subject matter. This format permits flexibility in revision and publication as the need arises. The reports listed below are for sale by the U.S. Geological Survey, Branch of Distribution, 1200 South Eads Street, Arlington, VA 22202 (authorized agent of the Superintendent of Documents, Government Printing Office).

NOTE: When ordering any of these publications, please give the title, book number, chapter number, and "U.S. Geological Survey Techniques of Water-Resources Investigations".

1-D1. *Water temperature--influential factors, field measurement, and data presentation*, by H. H. Stevens, Jr., J. F. Ficke, and G. F. Smoot: USGS--TWRI Book 1, Chapter D1. 1975. 65 pages.

1-D2. *Guidelines for collection and field analysis of ground-water samples for selected unstable constituents*, by W. W. Wood: USGS--TWRI Book 1, Chapter D2. 1976. 24 pages.

2-D1. *Application of surface geophysics to ground-water investigations*, by A. A. R. Zohdy, G. P. Eaton, and D. R. Mabey: USGS--TWRI Book 2, Chapter D1. 1974. 116 pages.

2-E1. *Application of borehole geophysics to water-resources investigations*, by W. S. Keys and L. M. MacCary: USGS--TWRI Book 2, Chapter E1. 1971. 126 pages.

3-A1. *General field and office procedures for indirect discharge measurements*, by M. A. Benson and Tate Dalrymple: USGS--TWRI Book 3, Chapter A1. 1967. 30 pages.

3-A2. *Measurement of peak discharge by the slope-area method*, by Tate Dalrymple and M. A. Benson: USGS--TWRI Book 3, Chapter A2. 1967. 12 pages.

3-A3. *Measurement of peak discharge at culverts by indirect methods*, by G. L. Bodhaine: USGS--TWRI Book 3, Chapter A3. 1968. 60 pages.

3-A4. *Measurement of peak discharge at width contractions by indirect methods*, by H. F. Matthai: USGS--TWRI Book 3, Chapter A4. 1967. 44 pages.

3-A5. *Measurement of peak discharge at dams by indirect methods*, by Harry Hulsing: USGS--TWRI Book 3, Chapter A5. 1967. 29 pages.

3-A6. *General procedure for gaging streams*, by R. W. Carter and Jacob Davidian: USGS--TWRI Book 3, Chapter A6. 1968. 13 pages.

3-A7. *Stage measurements at gaging stations*, by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chapter A7. 1968. 28 pages.

3-A8. *Discharge measurements at gaging stations*, by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chapter A8. 1969. 65 pages.

3-A11. *Measurement of discharge by moving-boat method*, by G. F. Smoot and C. E. Novak: USGS--TWRI Book 3, Chapter A11. 1969. 22 pages.

3-B1. *Aquifer-test design, observation, and data analysis*, by R. W. Stallman: USGS--TWRI Book 3, Chapter B1. 1971. 26 pages.

3-B2. *Introduction to ground-water hydraulics, a programed text for self-instruction*, by G. D. Bennett: USGS--TWRI Book 3, Chapter B2. 1976. 172 pages.

3-C1. *Fluvial sediment concepts*, by H. P. Guy: USGS--TWRI Book 3, Chapter C1. 1970. 55 pages.

3-C2. *Field methods for measurement of fluvial sediment*, by H. P. Guy and V. W. Norman: USGS--TWRI Book 3, Chapter C2. 1970. 59 pages.

3-C3. *Computation of fluvial-sediment discharge*, by George Porterfield: USGS--TWRI Book 3, Chapter C3. 1972. 66 pages.

4-A1. *Some statistical tools in hydrology*, by H. C. Riggs: USGS--TWRI Book 4, Chapter A1. 1968. 39 pages.

4-A2. *Frequency curves*, by H. C. Riggs: USGS--TWRI Book 4, Chapter A2. 1968. 15 pages.

4-B1. *Low-flow investigations*, by H. C. Riggs: USGS--TWRI Book 4, Chapter B1. 1972. 18 pages.

4-B2. *Storage analyses for water supply*, by H. C. Riggs and C. H. Hardison: USGS--TWRI Book 4, Chapter B2. 1973. 20 pages.

4-B3. *Regional analyses of streamflow characteristics*, by H. C. Riggs: USGS--TWRI Book 4, Chapter B3. 1973. 15 pages.

4-D1. *Computation of rate and volume of stream depletion by wells*, by C. T. Jenkins: USGS--TWRI Book 4, Chapter D1. 1970. 17 pages.

5-A1. *Methods for determination of inorganic substances in water and fluvial sediments*, by M. W. Skougstad and others, editors: USGS--TWRI Book 5, Chapter A1. 1979. 626 pages.

5-A2. *Determination of minor elements in water by emission spectroscopy*, by P. R. Barnett and E. C. Mallory, Jr.: USGS--TWRI Book 5, Chapter A2. 1971. 31 pages.

5-A3. *Methods for analysis of organic substances in water*, by D. F. Goerlitz and Eugene Brown: USGS--TWRI Book 5, Chapter A3. 1972. 40 pages.

5-A4. *Methods for collection and analysis of aquatic biological and microbiological samples*, edited by P. E. Greeson, T. A. Ehlke, G. A. Irwin, B. W. Lium, and K. V. Slack: USGS--TWRI Book 5, Chapter A4. 1977. 332 pages.

5-A5. *Methods for determination of radioactive substances in water and fluvial sediments*, by L. L. Thatcher, V. J. Janzer, and K. W. Edwards: USGS--TWRI Book 5, Chapter A5. 1977. 95 pages.

5-C1. *Laboratory theory and methods for sediment analysis*, by H. P. Guy: USGS--TWRI Book 5, Chapter C1. 1969. 58 pages.

7-C1. *Finite difference model for aquifer simulation in two dimensions with results of numerical experiments*, by P. C. Trescott, G. F. Pinder, and S. P. Larson: USGS--TWRI Book 7, Chapter C1. 1976. 116 pages.

7-C2. *Computer model of two-dimensional solute transport and dispersion in ground water*, by L. F. Konikow and J. D. Bredehoeft: USGS--TWRI Book 7, Chapter C2. 1978. 90 pages.

8-A1. *Methods of measuring water levels in deep wells*, by M. S. Garber and F. C. Koopman: USGS--TWRI Book 8, Chapter A1. 1968. 23 pages.

8-B2. *Calibration and maintenance of vertical-axis type current meters*, by G. F. Smoot and C. E. Novak: USGS--TWRI Book 8, Chapter B2. 1968. 15 pages.

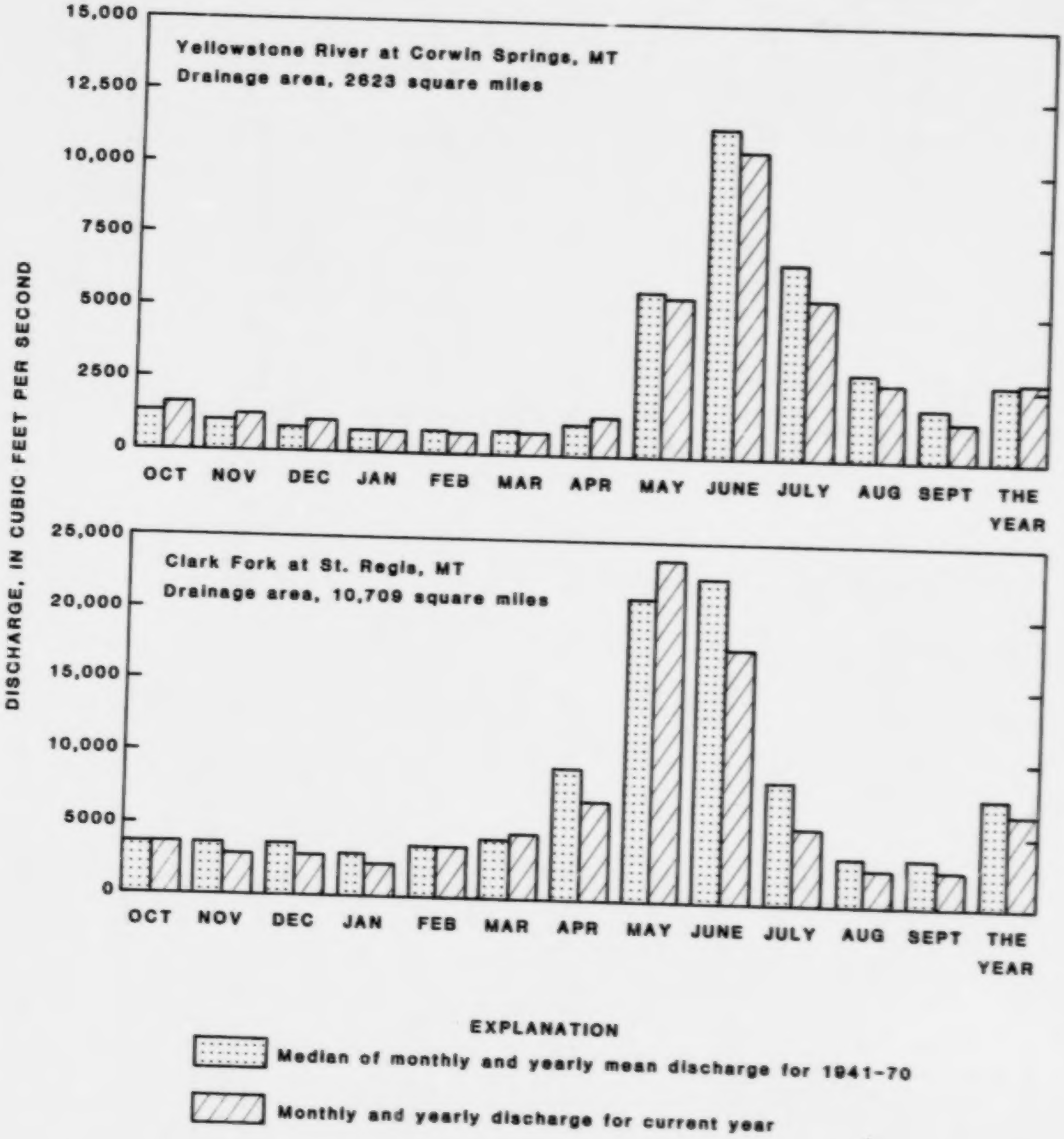
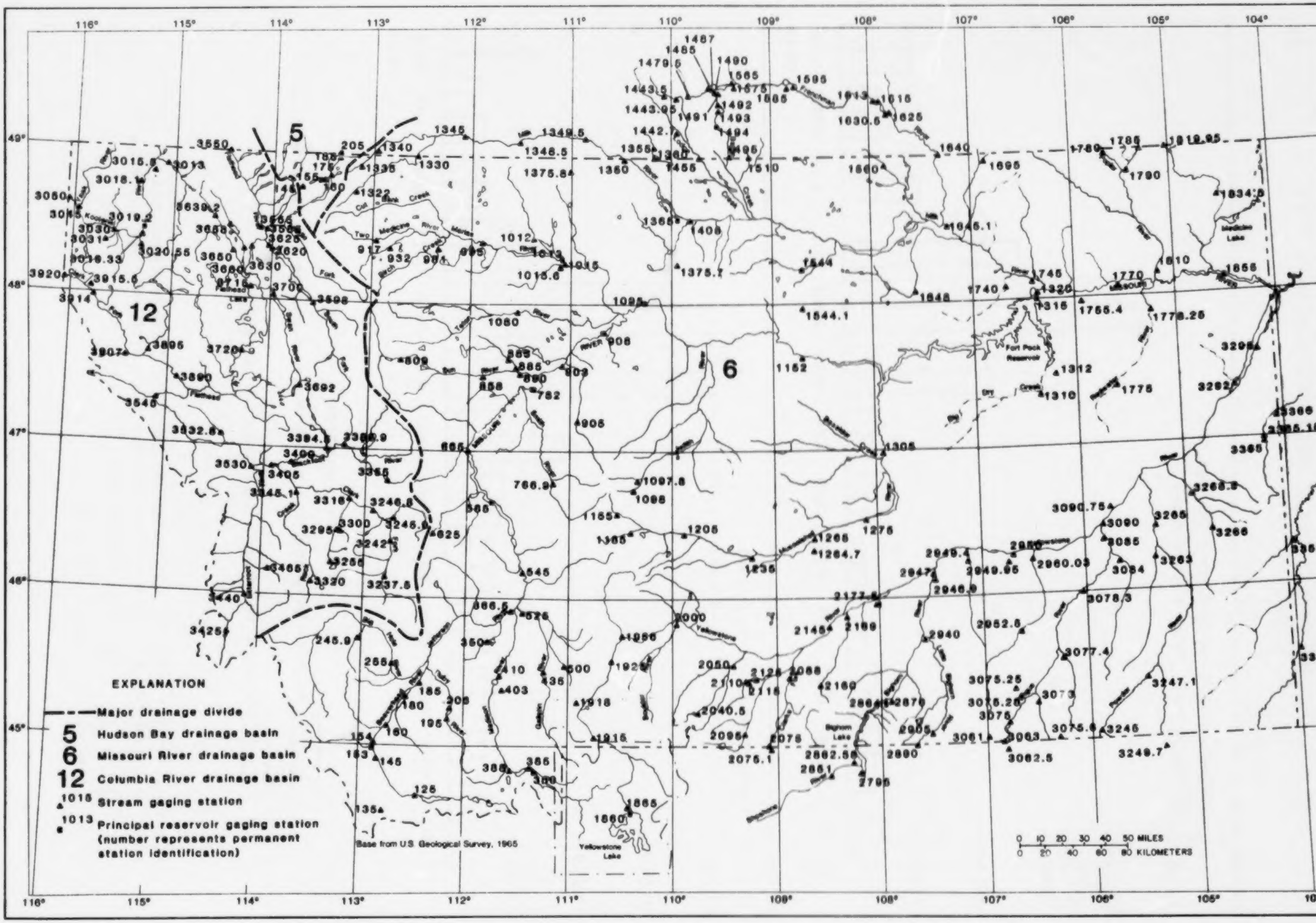


Figure 2.--Comparison of discharge at two long-term representative gaging stations during current year with medium discharge for period 1941-70.


EXPLANATION
Major drainage divide
5 Hudson Bay drainage basin
6 Missouri River drainage basin
12 Columbia River drainage basin
1015 Stream gaging station
1013 Principal reservoir gaging station (number represents permanent station identification)
5
6
12
Fort Peck Reservoir
Medicine Lake
Bighorn Lake
Yellowstone Lake
Missouri
Yellowstone
0 10 20 30 40 50 MILES
0 20 40 60 80 KILOMETERS
116° 115° 114° 113° 112° 111° 110° 109° 108° 107° 106° 105° 104°
49° 48° 47° 46° 45°

Base from U.S. Geological Survey, 1965

FIGURE 3.--LOCATION OF SURFACE-WATER GAGING STATIONS, 1979 WATER YEAR

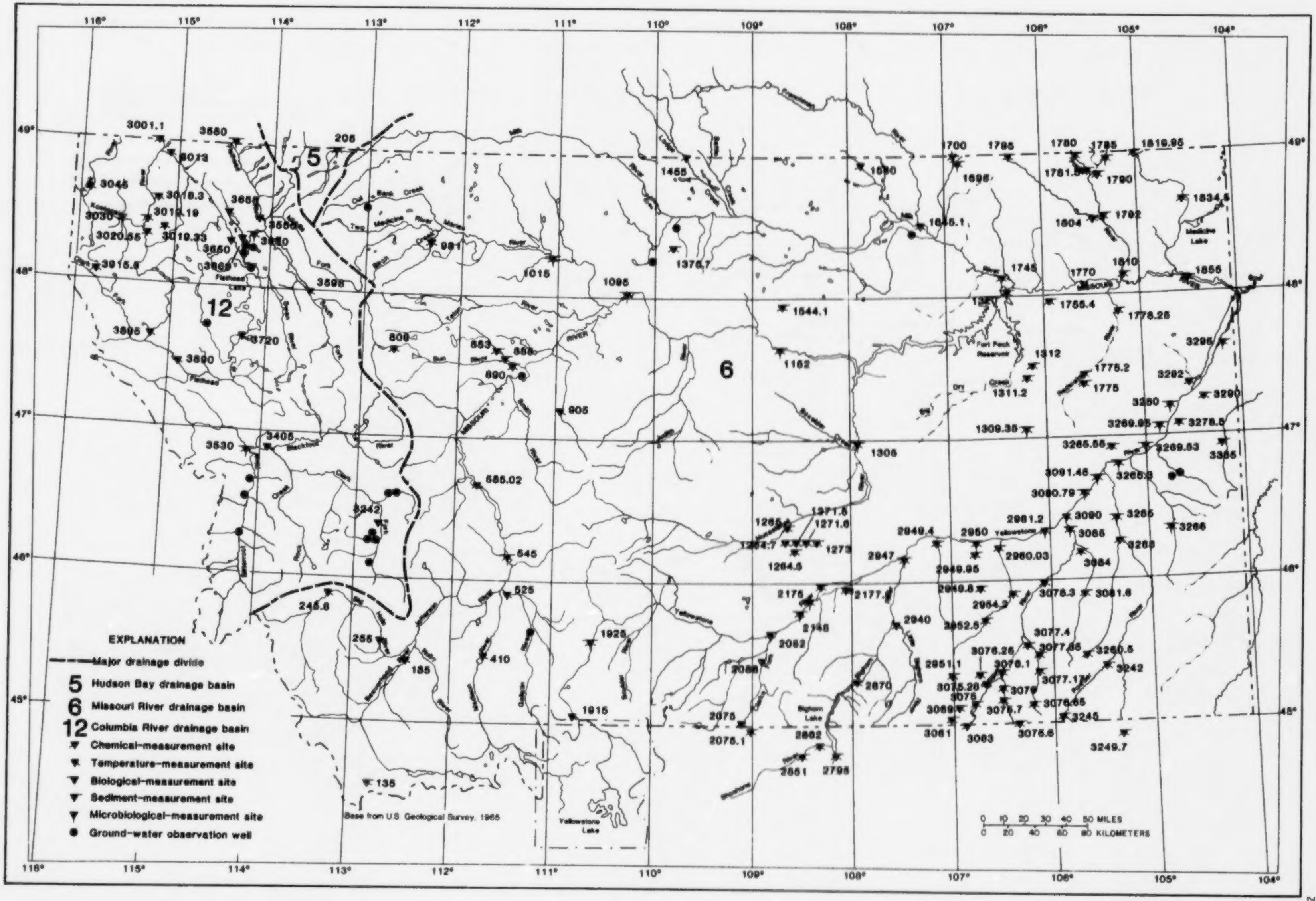

EXPLANATION
Major drainage divide
5 Hudson Bay drainage basin
6 Missouri River drainage basin
12 Columbia River drainage basin
Chemical-measurement site
Temperature-measurement site
Biological-measurement site
Sediment-measurement site
Microbiological-measurement site
● Ground-water observation well
0 10 20 30 40 50 MILES
0 20 40 60 80 KILOMETERS
Base from U.S. Geological Survey, 1965
116° 115° 114° 113° 112° 111° 110° 109° 108° 107° 106° 105° 104°
49° 48° 47° 46° 45°
5
6
12
Yellowstone Lake
Flathead Lake
Fort Peck Reservoir
Bighorn Lake
Medicine Lake
MISSOURI RIVER
Yellowstone
3001.1
3550
205
3013
3046
3018.3
3030
3019.19
3020.55
3019.33
3650
3660
3560
3640
3660
3915.5
3598
981
1015
1095
1455
1376.7
1544.1
1162
1590
1646.1
1700
1795
1696
1780
1785
1819.95
1781.5
1790
1804
1792
1834.5
1745
1770
1810
1855
1755.4
1778.25
3295
1312
1775.2
1775
1311.2
3292
3280
3290
3269.95
3278.5
1309.35
3265.55
3269.53
3305
1305
3091.45
3265.3
3090.79
2961.2
3090
3265
3085
3266
3268
3084
2949.4
2950
2960.03
2947
2949.95
1371.5
1271.6
1265
1264.7
1273
1264.5
3598
3896
3720
3590
600
853
855
890
905
3530
3405
585.02
3242
545
525
245.8
255
185
410
1923
1915
135
2175
2177
2146
2062
2065
2075
2075.1
2862
2851
2795
2940
2870
2949.8
2954.3
3075.3
3081.6
2952.5
3077.4
3077.65
3260.5
3076.25
3076.1
3242
2951.1
3075.28
3077.17
3076
3079
3069
3075.7
3076.65
3061
3063
3076.6
3245
3249.7

FIGURE 4.--LOCATION OF SURFACE-WATER QUALITY STATIONS, AND GROUND-WATER OBSERVATION WELLS, 1979 WATER YEAR

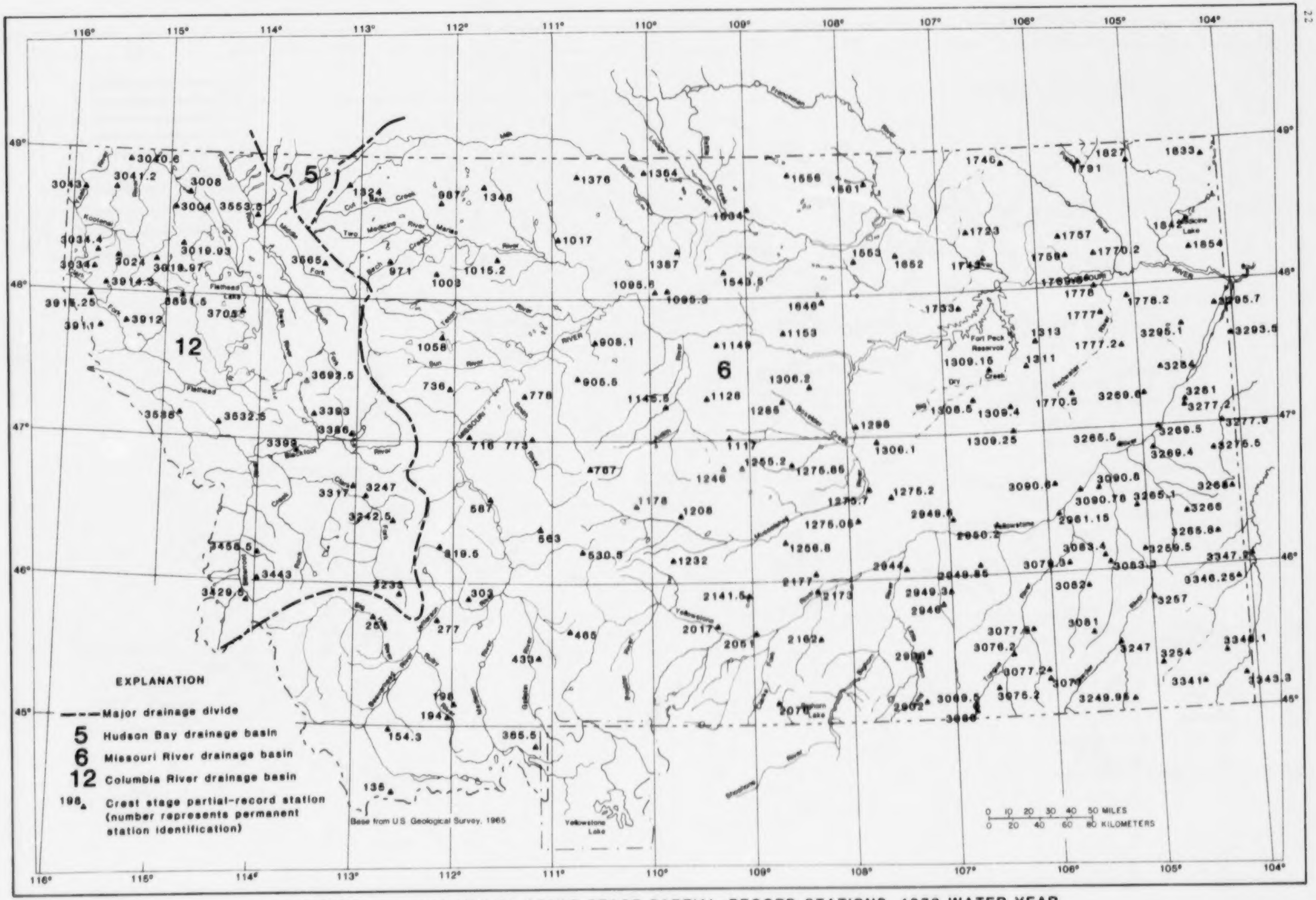

EXPLANATION
Major drainage divide
5 Hudson Bay drainage basin
6 Missouri River drainage basin
12 Columbia River drainage basin
198 Crest stage partial-record station (number represents permanent station identification)
Base from U.S. Geological Survey, 1965
0 10 20 30 40 50 MILES
0 20 40 60 80 KILOMETERS
116°
115°
114°
113°
112°
111°
110°
109°
108°
107°
106°
105°
104°
49°
48°
47°
46°
45°
5
6
12
Fort Peck Reservoir
Yellowstone Lake
Flathead Lake
3040.6
3043
3041.2
3008
3004
3553.5
3034.4
3034
3024
3019.93
3018.97
3914.3
3915.25
3911
3912
3891.5
3705
3665
3693.5
3538
3532.5
3393
3386
3395
3317
3247
3242.5
3458.5
3443
3429.5
1324
987
1348
971
1003
1015.2
1058
736
778
716
773
587
563
519.5
303
277
233
251
198
194
154.3
135
365.5
433
465
530.5
787
905.5
908.1
1017
1376
1364
1387
1095.5
1095.3
1004
1540.5
1556
1561
1553
1552
1646
1153
1149
1145.5
1128
1117
1178
1208
1232
1246
1265.2
1275.85
1265
1306.2
1296
1306.1
1275.2
1275.7
1275.05
1266.8
2177
2173
2141.5
2017
2051
2162
2070
2044
2949.6
2950.2
2949.3
2948.85
2946
2900
2902
3069.5
3060
1723
1740
1743
1733
1309.15
1308.5
1309.4
1309.25
1313
1311
1757
1758
1770.2
1769
1778
1777
1777.2
1778.2
1770.5
1791
1827
1833
1842
1854
3295.7
3293.5
3295.1
3284
3269.6
3261
3277.2
3277.9
3269.5
3269.4
3276.5
3265.5
3264
3266
3265.1
3265.8
3259.5
3090.8
3090.6
3090.78
3061.15
3083.4
3083.3
3079.5
3082
3081
3077
3076.2
3077.2
3075.2
3076
3249.95
3247
3254
3257
3341
3343.3
3346.1
3346.25
3347.5

FIGURE 5.--LOCATION OF CREST STAGE PARTIAL-RECORD STATIONS, 1979 WATER YEAR

05014500 SWIFTCURRENT CREEK AT MANY GLACIER, MT

(Hydrologic bench-mark station)

LOCATION.--Lat 48°47'57", long 113°39'21", in SE¼ sec.11, T.35 N., R.16 W., (unsurveyed), Glacier County, Hydrologic Unit 10010002, Glacier National Park, on right bank 100 ft (30 m) upstream from outlet of Swiftcurrent Lake at Many Glacier, and 11 mi (18 km) southwest of Babb.

DRAINAGE AREA.--30.9 mi² (80.0 km²).

PERIOD OF RECORD.--June 1912 to current year (records incomplete most years prior to 1959). Published as "at McDermott Lake" 1912-14. Monthly discharge only for some periods, published in WSP 1308.

REVISED RECORDS.--WSP 1508: 1918(M), 1943. WDR MT-75-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 4,876.78 ft (1,486.443 m), National Geodetic Vertical Datum of 1929. Prior to May 23, 1916, nonrecording gage on left bank of lake oppostie present gage and at present datum, and May 23, 1916, to June 15, 1918, nonrecording gage at present site and datum. Several observations of water temperature were made during the water year and are available in files of Helena district office.

REMARKS.--Records good. No regulation or diversion.

AVERAGE DISCHARGE.--23 years, (1917-19, 1958-79), 145 ft³/s (4.106 m³/s), 63.72 in/yr (1,620 mm/yr), 105,100 acre-ft/yr (130 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,700 ft³/s (190 m³/s) June 8, 1964, gage height, 10.00 ft (3.048 m) from floodmarks; from rating curve extended above 1,100 ft³/s (31.2 m³/s) on basis of computation of peak flow over dam; minimum, no flow Nov. 14-16, 1976 (result of pumping operation).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 680 ft³/s (19.3 m³/s) and maximums (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
May 27	0915	1,060	30.0	4.63	1.411	June 6	0400	*1,070	30.3	*4.66	1.420

Minimum discharge, 7.5 ft³/s (0.21 m³/s) Feb. 9, gage height, 1.38 ft (0.421 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	113	22	20	11	8.0	12	29	230	279	343	102	82
2	99	25	18	12	8.0	12	27	209	356	338	103	83
3	91	24	17	12	8.5	13	25	202	521	255	102	77
4	78	79	17	12	8.5	14	24	224	625	215	97	74
5	75	86	16	11	8.5	15	24	398	760	229	94	67
6	70	102	16	12	8.5	17	25	428	986	263	89	61
7	65	91	15	11	9.5	29	36	340	656	323	88	58
8	59	89	15	12	9.4	44	38	247	442	322	83	57
9	58	91	16	12	8.5	58	44	190	366	270	79	66
10	69	78	17	11	10	62	49	158	403	242	78	65
11	47	67	17	10	11	53	47	148	479	224	77	60
12	46	60	18	10	10	43	43	163	573	196	77	56
13	45	60	15	9.5	12	37	40	196	641	164	76	51
14	44	55	11	9.0	14	33	38	245	561	146	74	47
15	41	52	12	9.0	13	30	35	298	418	141	71	43
16	39	48	11	9.0	13	31	34	492	329	137	68	42
17	38	45	11	9.3	14	32	40	575	305	135	70	42
18	38	45	11	9.8	14	31	50	472	362	140	74	44
19	37	40	11	10	15	30	52	405	422	153	76	44
20	34	40	12	9.8	16	30	50	387	411	161	79	43
21	36	35	12	10	16	33	47	452	359	162	88	42
22	37	35	12	10	17	39	48	572	325	162	86	39
23	44	32	12	10	15	39	48	609	308	161	87	40
24	28	31	12	9.6	12	36	44	751	321	152	86	39
25	30	29	12	9.5	12	38	40	894	334	138	81	38
26	27	29	11	9.5	12	37	44	901	332	117	74	35
27	28	27	11	9.0	13	36	59	1020	336	104	69	34
28	29	25	11	9.0	12	31	92	809	337	102	69	34
29	31	24	10	8.5	---	29	145	538	328	102	69	31
30	30	22	10	8.5	---	30	194	378	323	107	68	28
31	24	---	10	8.0	---	31	---	287	---	107	70	---
TOTAL	1530	1488	421	313.0	328.4	1005	1511	13218	13198	5811	2504	1522
MEAN	49.4	49.6	13.6	10.1	11.7	32.4	50.4	426	440	187	80.8	50.7
MAX	113	102	20	12	17	62	194	1020	986	343	103	83
MIN	24	22	10	8.0	8.0	12	24	148	279	102	68	28
CFSM	1.60	1.61	.44	.33	.38	1.05	1.63	13.8	14.2	6.05	2.62	1.64
IN.	1.84	1.79	.51	.38	.40	1.21	1.82	15.91	15.89	7.00	3.01	1.83
AC-FT	3030	2950	835	621	651	1990	3000	26220	26180	11530	4970	3020

CAL YR 1978 TOTAL 55857.6 MEAN 153 MAX 904 MIN 9.0 CFSM 4.95 IN 67.24 AC-FT 110800
WTR YR 1979 TOTAL 42849.4 MEAN 117 MAX 1020 MIN 8.0 CFSM 3.79 IN 51.58 AC-FT 84990

05015500 LAKE SHERBURNE AT SHERBURNE, MT

(International gaging station)

LOCATION.--Lat 48°49'42", long 113°31'16", in SE¼SE¼SE¼ sec.35, T.36 N., R.15 W., Glacier County, Hydrologic Unit 10010002, in gatehouse at dam on Swiftcurrent Creek, 4.5 mi (7.2 km) southwest of Babb.

DRAINAGE AREA.--63.7 mi² (165.0 km²).

PERIOD OF RECORD.--May 1915 to September 1923 (fragmentary), May 1924 to September 1925, November 1925 to June 1926, September 1926 to March 1936 (no winter records some years), May 1936 to September 1952 (monthend contents and daily elevations). October 1952 to current year (monthend contents only). Monthend contents for some periods, published in WSP 1308. Published as Sherburne Lake Reservoir at Sherburne 1915, 1917-28, 1931-52, and as Sherburne Lake Reservoir near Babb 1929-30.

REVISED RECORDS.--WSP 1338: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 4,709.45 ft (1,435.440 m) National Geodetic Vertical Datum of 1929. Prior to May 7, 1931, nonrecording gage at present site, and May 8, 1931, to Sept. 30, 1974, water-stage recorder at present site, all of datum 9.54 ft (2.880 m) lower.

REMARKS.--Reservoir is formed on a natural lake by earthfill dam completed in 1921. Prior to 1919, flashboards on a temporary dam provided limited storage. Storage behind main dam began in 1919. The following capacity figures are from capacity table effective Oct. 1, 1975; see previous reports for superseded figures. Capacity, 66,400 acre-ft (81.9 hm³) between gage height 26 ft (7.9 m), 6 ft (1.8 m) above lowest outlet gate sill, and 88.00 ft (26.822 m), spillway crest. Streambed above gates prevents withdrawal of storage to sill elevation. Dead storage, 1,590 acre-ft (1.96 hm³) below gage height, 26.00 ft (7.925 m). Figures given herein represent usable contents. Water is used for irrigation on Milk River project of Water and Power Resources Service (formerly Bureau of Reclamation).

COOPERATION.--This is one of a number of stations which are maintained jointly by the United States and Canada.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 66,780 acre-ft (82.3 hm³) July 14, 1972 (gage height, 88.34 ft or 26.926 m), by capacity table dated Dec. 1, 1929; by capacity table dated Oct. 1, 1975, maximum contents 68,030 acre-ft (83.9 hm³) July 14, 1976 (gage height, 88.02 ft or 26.828 m); no usable contents at times.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 58,370 acre-ft (72.0 hm³) July 8, gage height, 81.89 ft (24.960 m); minimum, 4,040 acre-ft (4.98 hm³) Nov. 6, gage height, 30.78 ft (9.382 m).

MONTHEND GAGE HEIGHT AND CONTENTS AT 2400, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Gage height (feet)	Contents (acre-feet)	Change in Contents (acre-feet)
Sept. 30	47.55	16,990	--
Oct. 31	36.92	8,170	- 8,820
Nov. 30	37.75	8,790	+ 620
Dec. 31	40.42	10,860	+ 2,070
CAL YR 1978			-15,490
Jan. 31	41.60	11,810	+ 950
Feb. 28	43.09	13,050	+ 1,240
Mar. 31	46.89	16,390	+ 3,340
Apr. 30	52.44	21,660	+ 5,270
May 31	61.25	31,040	+ 9,380
June 30	81.19	57,300	+26,260
July 31	71.58	43,490	-13,810
Aug. 31	43.67	13,550	-29,940
Sept. 30	35.04	6,820	- 6,730
WTR YR 1979			-10,170

05016000 SWIFTCURRENT CREEK AT SHERBURNE, MT

(International gaging station)

LOCATION.--Lat 48°49'49", long 113°30'59", in NW¼SW¼SW¼ sec.36, T.36 N., R.15 W., Glacier County, Hydrologic Unit 10010002, on left bank 1,200 ft (366 m) downstream from outlet of Lake Sherburne Dam at Sherburne and 4.2 mi (6.8 km) southwest of Babb.

DRAINAGE AREA.--64.3 mi² (166.5 km²).

PERIOD OF RECORD.--July 1912 to November 1915 (no winter records), March 1916 to October 1923, May 1924 to current year (no winter records). Monthly discharge only for some periods, published in WSP 1308, 1728. Published as "at Sherburne Lake" 1912-14.

REVISED RECORDS.--WSP 1388: Drainage area. WSP 1508: 1935.

GAGE.--Water-stage recorder. Datum of gage is 4,730.26 ft (1,441.783 m) National Geodetic Vertical Datum of 1929. Prior to Aug. 10, 1920, nonrecording gages at two sites within 1,000 ft (305 m) of present site at different datums. Aug. 10, 1920, to May 17, 1921, nonrecording gage at present site and May 18, 1921, to Sept. 30, 1975, water-stage recorder at present site, all at datum 9.45 ft (2.880 m) lower. Several observations of water temperature were made during the year and are available in files of Helena district office.

REMARKS.--Records good. Flow regulated by Lake Sherburne (see preceding page). No diversions.

COOPERATION.--This is one of a number of stations which are maintained jointly by the United States and Canada.

AVERAGE DISCHARGE.--7 years (1916-23), 199 ft³/s (5.636 m³/s), 144,200 acre-ft/yr (178 hm³/yr), unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,420 ft³/s (68.5 m³/s) June 25, 1969, gage height, 7.63 ft (2.326 m); maximum gage height, 7.75 ft (2.362 m) June 21, 1975, no flow at times when gates in dam were closed.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,890 ft³/s (53.5 m³/s) May 27, gage height, 7.27 ft (2.216 m); minimum, 0.01 ft³/s (0.0003 m³/s) Sept. 21, gage height, 1.46 ft (0.445 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	502	137	---		---	1.6	4.0	5.7	286	227	604	540
2	494	97	---		---	1.7	4.0	5.5	286	253	599	526
3	485	---	---		---	1.8	4.2	5.6	288	269	626	511
4	473	---	---		---	1.9	4.2	5.6	209	269	638	538
5	459	---	---		---	2.0	4.2	6.0	149	293	631	573
6	448	---	---		---	2.1	4.4	6.5	153	336	625	562
7	433	---	---		---	2.2	4.9	8.1	155	353	621	528
8	420	---	---		---	2.3	5.1	.46	157	358	614	476
9	406	---	---		---	2.4	5.1	.39	160	361	608	399
10	373	---	---		---	2.5	5.1	96	161	363	618	256
11	321	---	---		---	2.6	4.9	158	162	363	625	169
12	249	---	---		---	2.7	4.9	158	163	362	619	132
13	192	---	† 2.0		---	2.8	5.1	160	114	385	596	106
14	147	---	---		---	2.9	5.3	238	82	400	574	43
15	119	---	---		---	3.0	5.3	366	82	400	566	.15
16	101	---	---		---	3.1	5.8	587	83	425	559	.10
17	89	---	---		---	3.2	6.4	851	83	458	552	1.1
18	83	---	---		---	3.3	6.0	777	84	513	563	.84
19	75	---	---		---	3.4	5.8	603	84	600	569	.38
20	63	---	---		---	3.5	5.6	543	84	651	578	.02
21	56	---	---		†1.2	3.6	5.8	543	84	647	603	.12
22	63	---	---		---	3.4	5.7	647	85	644	606	.07
23	61	---	---		---	3.6	5.3	854	86	642	613	.07
24	32	---	---		---	4.0	5.4	1030	86	639	617	.07
25	36	---	---		---	4.0	5.5	1170	87	634	605	.07
26	36	---	---		---	4.0	5.5	1240	87	630	594	.06
27	34	---	---		---	3.8	6.0	1410	87	626	597	.05
28	35	---	---		---	3.8	5.9	1340	87	621	594	.05
29	37	---	---		---	3.8	6.0	834	157	616	584	.05
30	42	---	---		---	3.8	6.0	443	227	613	570	.05
31	44	---	---		---	3.8	---	285	---	608	555	---
TOTAL	6408	---	---		---	92.6	157.4	14378.85	4098	14559	18523	5364.25
MEAN	207	---	---		---	2.99	5.25	464	137	470	598	179
MAX	502	---	---		---	4.0	6.4	1410	288	651	638	573
MIN	32	---	---		---	1.6	4.0	.39	82	227	552	.02
AC-FT	12710	---	---		---	184	312	28520	8130	28880	36740	10640

† Result of discharge measurement.

05017500 ST. MARY RIVER NEAR BABB, MT

LOCATION.--Lat 48°50'00", long 113°25'08", in NW¼NW¼SE¼ sec.34, T.36 N., R.14 W., Glacier County, Hydrologic Unit 10010002, on right bank 0.7 mi (1.1 km) upstream from outlet of Lower St. Mary Lake and 2.0 mi (3.2 km) southeast of Babb.

DRAINAGE AREA.--278 mi² (720 km²).

PERIOD OF RECORD.--July 1901 to October 1902, May 1910 to September 1925, October 1950 to current year. Monthly discharge only for some periods, published in WSP 1308. Published as "at Main" 1901-2, and as "below Swiftcurrent Creek, at Babb" 1910-15. Records for April 1902 to September 1915, May 1929 to September 1950 at sites about 1.5 mi (2.4 km) downstream not equivalent because flow of Swiftcurrent Creek not included 1905-15 and because diversion by St. Mary Canal not included 1929-50.

REVISED RECORDS.--WSP 1308: 1913-14, 1920, 1922-24. WSP 1508: 1902.

GAGE.--Water-stage recorder. Datum of gage is 4,468.13 ft (1,361.886 m) National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1915, water-stage recorder or nonrecording gages at several sites about 3.8 mi (6.1 km) downstream at different datums. Oct. 1, 1915, to Sept. 30, 1925, water-stage recorder or nonrecording gages at several sites within 1.5 mi (2.4 km) downstream at different datums. Several observations of water temperature were made during the year and are available in files of Helena district office.

REMARKS.--Records good. Entire flow of Swiftcurrent Creek below Lake Sherburne is diverted into Lower St. Mary Lake above station. Flow of Swiftcurrent Creek regulated by Lake Sherburne (see p. 24) since 1919. October 1950 to September 1976, monthly discharge and runoff figures adjusted for change in contents (adjusted for evaporation October 1961 to September 1976) in Lake Sherburne.

AVERAGE DISCHARGE.--45 years (1901-2, 1910-25, 1950-79), 790 ft³/s (22.37 m³/s), 572,400 acre-ft/yr (706 hm³/yr), unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 16,500 ft³/s (467 m³/s) June 9, 1964, gage height, 12.96 ft (3.950 m), from high-water mark in well, from rating curve extended above 6,100 ft³/s (173 m³/s) on basis of slope-area measurement of peak flow; minimum, 26 ft³/s (0.74 m³/s) Jan. 5, 1963, Jan. 8, 1958.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,770 ft³/s (135 m³/s) May 28, gage height, 6.37 ft (1.942 m); minimum, 57 ft³/s (1.61 m³/s) Jan. 27, gage height, 0.69 ft (0.210 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1020	184	163	93	65	72	136	353	2510	1670	1130	869
2	985	192	157	93	65	71	136	401	2230	1680	1110	851
3	952	276	148	92	65	69	132	448	2130	1630	1090	834
4	916	395	145	90	66	68	132	499	2250	1540	1100	828
5	882	407	143	90	66	68	132	576	2390	1480	1090	830
6	852	370	140	88	66	71	133	733	2790	1490	1070	830
7	819	372	134	86	68	81	141	869	3060	1560	1050	814
8	790	332	129	84	68	87	144	937	2970	1610	1030	789
9	759	302	124	84	66	89	150	951	2700	1620	1010	752
10	727	268	122	81	69	91	157	937	2440	1600	992	672
11	677	241	122	81	68	90	162	964	2290	1550	980	577
12	615	223	124	80	68	92	166	973	2280	1500	977	508
13	546	217	117	78	71	93	163	975	2350	1430	962	441
14	485	220	120	76	71	94	165	1000	2350	1350	941	390
15	424	217	122	76	68	96	166	1110	2270	1290	922	328
16	376	213	117	79	68	101	167	1340	2120	1240	905	282
17	341	213	114	79	72	104	174	1800	1950	1210	886	250
18	318	210	112	77	77	105	189	2130	1930	1200	876	226
19	300	207	110	77	81	106	195	2220	1980	1240	878	207
20	275	203	105	79	81	107	201	2190	1990	1310	891	196
21	255	196	101	81	81	107	208	2180	1930	1350	926	186
22	243	193	103	79	81	108	213	2270	1840	1370	936	178
23	243	163	103	74	80	108	224	2510	1740	1370	937	171
24	230	137	102	69	79	112	227	2930	1660	1360	960	165
25	212	132	100	64	77	121	222	3400	1610	1350	964	161
26	198	148	100	59	76	123	227	3860	1590	1310	958	157
27	182	166	98	58	75	127	238	4280	1580	1270	945	151
28	172	183	96	56	74	127	254	4660	1580	1240	933	146
29	168	176	95	61	---	130	277	4320	1570	1200	913	136
30	171	169	95	62	---	132	305	3660	1620	1180	894	131
31	170	---	93	64	---	134	---	2980	---	1160	883	---
TOTAL	15303	6925	3654	2392	2012	3084	5536	58456	63680	43360	30139	13056
MEAN	494	231	118	77.2	71.9	99.5	185	1886	2123	1399	972	435
MAX	1020	407	163	93	81	134	305	4660	3060	1680	1130	869
MIN	168	132	93	58	65	68	132	353	1570	1160	876	131
AC-FT	30350	13740	7250	4740	3990	6120	10980	115900	126300	86000	59780	25900

CAL YR 1978 TOTAL 312943 MEAN 857 MAX 4030 MIN 56 AC-FT 620700
WTR YR 1979 TOTAL 247597 MEAN 678 MAX 4660 MIN 58 AC-FT 491100

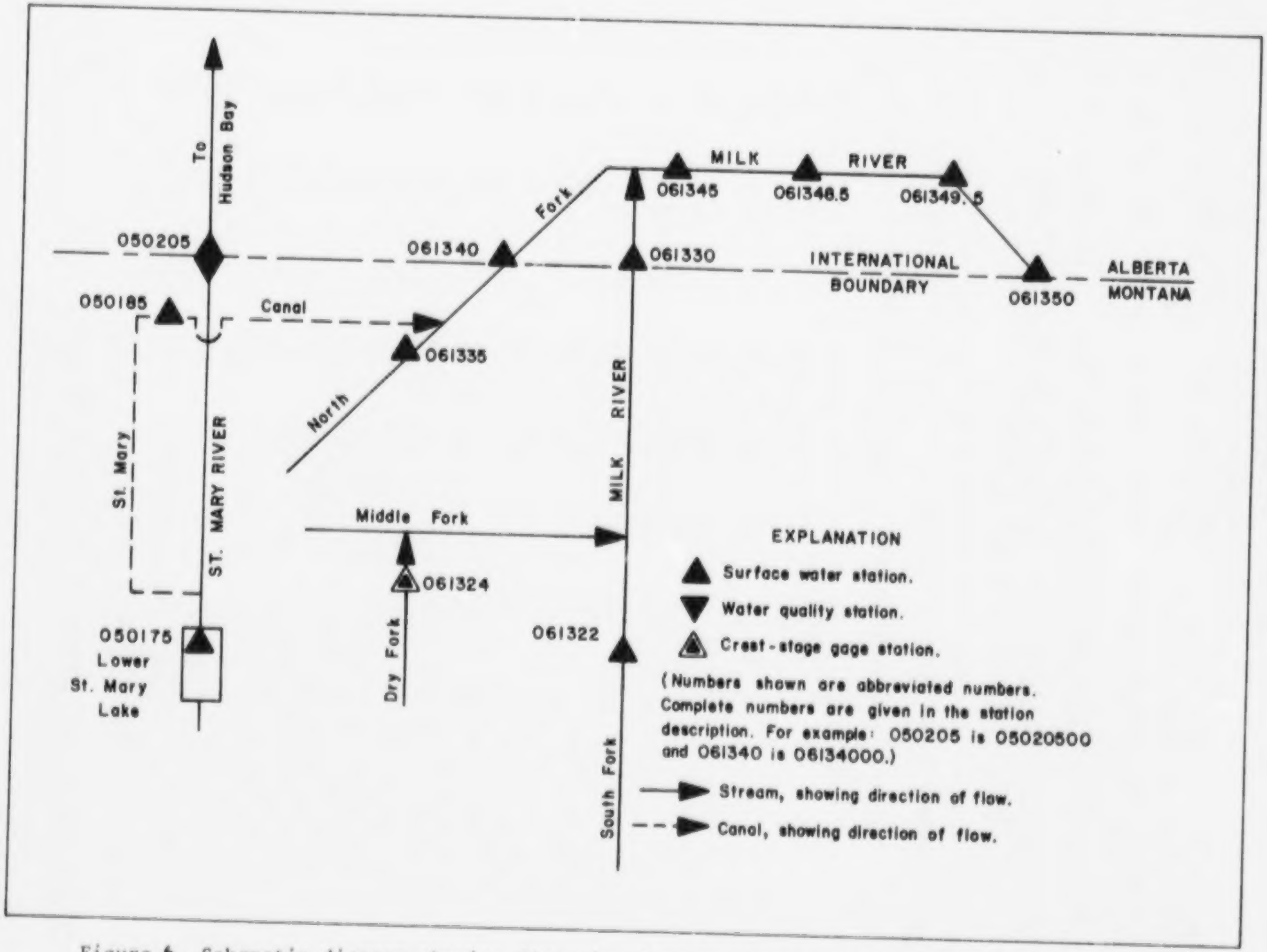

To Hudson Bay
050205
050185
Canal
St. Mary
ST. MARY RIVER
050175
Lower
St. Mary
Lake
North
Fork
061340
061335
Middle Fork
061324
Dry Fork
MILK RIVER
061322
South Fork
061330
061345
MILK RIVER
061348.5
061349.5
INTERNATIONAL
BOUNDARY
061350
ALBERTA
MONTANA
EXPLANATION
Surface water station.
Water quality station.
Crest-stage gage station.
(Numbers shown are abbreviated numbers. Complete numbers are given in the station description. For example: 050205 is 05020500 and 061340 is 06134000.)
Stream, showing direction of flow.
Canal, showing direction of flow.

Figure 6. Schematic diagram showing diversion from St. Mary River in Part 5 to Milk River in Part 6.

05018500 ST. MARY CANAL AT ST. MARY CROSSING, NEAR BABB, MT

(International gaging station)

LOCATION.--Lat 48°56'50", long 113°22'28", in NE¼SW¼SW¼ sec.19, T.37 N., R.13 W., Glacier County, Hydrologic Unit 10010002, on left bank 50 ft (15 m) upstream from inlet of St. Mary siphon, 6.6 mi (10.6 km) northeast of Babb, and 9 mi (15 km) downstream from intake.

PERIOD OF RECORD.--July 1918 to current season (seasonal records only). Monthly discharge only for some periods, published in WSP 1308, 1728.

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 4,450 ft (1,360 m), from topographic map. Prior to June 14, 1951, water-stage recorder at several sites 0.8 mi (1.3 km) downstream at different datums.

REMARKS.--Records good. Canal diverts water from left bank of St. Mary River near Babb and discharges into North Fork Milk River. This water flows in the natural channel of Milk River through Canada and then back into Montana, where it is used for irrigation in Milk River Valley east of Havre. Some water may be returned to St. Mary River at Kennedy Creek and St. Mary crossings.

COOPERATION.--This is one of a number of stations which are maintained jointly by the United States and Canada.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 767 ft³/s (21.7 m³/s) June 19, 28, 1936; no flow at times each season.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY 1979 TO DECEMBER 1979
MEAN VALUES

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1				.00	.00	549	565	642	546	.00	.00	
2				.00	.00	542	610	640	546	.00	---	
3				.00	.00	536	609	636	544	.00	---	
4				.00	.00	544	607	637	543	.00	---	
5				.00	.00	591	604	635	535	.00	---	
6				.00	.00	631	622	631	472	.00	---	
7				.00	.00	658	663	628	466	.00	---	
8				.00	.00	658	666	627	279	.00	---	
9				.00	.00	652	666	626	239	.00	---	
10				.00	.00	647	669	624	191	.00	---	
11				.00	.00	652	665	619	72	.00	---	
12				.00	.00	668	662	618	2.2	.00	---	
13				.00	.00	671	661	618	.00	.00	---	
14				.00	.00	674	659	616	.00	.00	---	
15				.00	35	688	656	613	.00	.00	---	
16				.00	132	683	653	612	.00	.00	---	
17				.00	134	678	650	607	.00	.00	---	
18				.00	133	680	650	610	.00	.00	---	
19				.00	131	677	651	609	.00	.00	---	
20				.00	130	675	654	611	.00	.00	---	
21				.00	130	673	653	631	.00	.00	---	
22				.00	129	670	655	635	.00	.00	---	
23				.00	129	669	654	634	.00	.00	---	
24				.00	126	666	655	636	.00	.00	---	
25				.00	123	647	654	634	.00	.00	---	
26				.00	122	590	657	631	.00	.00	---	
27				.00	121	544	652	632	.00	.00	---	
28				.00	118	545	650	606	.00	.00	---	
29				.00	156	544	650	551	.00	.00	---	
30				.00	308	546	646	548	.00	.00	---	
31				---	484	---	645	546	---	.00	---	
TOTAL				.00	2641.00	18848	20013	19143	4435.20	.00	---	
MEAN				.000	85.2	628	646	618	148	.000	---	
MAX				.00	484	688	669	642	546	.00	---	
MIN				.00	.00	536	565	546	.00	.00	---	
AC-FT				.00	5240	37380	39700	37970	8800	.00	---	

THE SEASON APRIL TO OCTOBER AC-FT 129,100

Note.--Differences between figures published herein and corresponding figures in reports of the Water Survey of Canada are due to variations in automated program techniques.

05020500 ST. MARY RIVER AT INTERNATIONAL BOUNDARY

(International gaging station)

LOCATION.--Lat 49°00'12", long 113°18'48", in SW¼ sec.5, T.1, R.25 W., fourth meridian, in Alberta, Hydrologic Unit 10010002, on right bank 0.4 mi (0.6 km) north of international boundary, 2.5 mi (4.0 km) downstream from Boundary Creek, 7.5 mi (12.1 km) southwest of Kimball, Alberta, and 11.5 mi (18.5 km) northeast of Babb, Mt.

DRAINAGE AREA.--469 mi² (1,215 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1902 to current year. Monthly discharge only for some periods, published in WSP 1308. Published as "near Cardston, Alberta" and "at Cook's Ranch, Alberta" 1902-12 and as "near Kimball, Alberta" 1913-55.

REVISED RECORDS.--WSP 1308: 1902, 1908-12. WSP 1508: 1902, 1908-9.

GAGE.--Water-stage recorder. Altitude of gage is 4,120 ft (1,260 m), from topographic map. Prior to Jan 1, 1913, nonrecording gages at two sites within 0.3 mi (0.5 km) of present site at different datums. Jan. 1, 1913, to Oct. 25, 1955, water-stage recorder at several sites about 8 mi (13 km) downstream from present site at various datums. Oct. 26, 1955, to Mar. 23, 1965, water-stage recorder at site 100 ft (30 m) upstream at datum 2 ft (0.6 m) higher.

REMARKS.--Records good except those for winter months, which are poor. Since 1917, St. Mary Canal has diverted water from the river near Babb, Mt. to North Fork Milk River. Some regulation by Lake Sherburne on Swiftcurrent Creek.

COOPERATION.--This is one of a number of stations which are maintained jointly by Canada and the United States.

AVERAGE DISCHARGE.--14 years (1902-16), prior to operation of St. Mary Canal, 1,003 ft³/s (28.40 m³/s), 726,700 acre-ft/yr (896 hm³/yr); 63 years (1916-79), 704 ft³/s (19.94 m³/s), 510,000 acre-ft/yr (629 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 40,000 ft³/s (1,133 m³/s) June 5, 1908, gage height, 12.75 ft (3.886 m), from floodmarks, site and datum then in use, from rating curve extended above 6,000 ft³/s (170 m³/s); minimum daily, 16 ft³/s (0.45 m³/s) Nov. 20, 1936.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,080 ft³/s (144 m³/s) May 28, gage height, 7.58 ft (2.310 m); minimum daily, 77 ft³/s (2.18 m³/s) Jan. 28, 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1120	237	211	118	81	88	210	815	2250	1260	536	370
2	1090	261	201	116	81	86	201	823	1960	1230	514	348
3	1070	349	198	113	81	88	198	865	1980	1170	497	331
4	1020	490	195	109	81	95	214	900	2050	1120	492	318
5	988	513	193	107	81	109	217	1020	2120	1070	492	335
6	946	490	190	105	82	131	240	1230	2500	1020	471	411
7	912	481	188	103	82	195	291	1350	2740	1040	456	397
8	879	472	183	101	84	261	361	1400	2610	1090	441	601
9	840	416	180	99	84	361	426	1380	2310	1110	416	583
10	796	380	178	99	82	402	361	1520	2080	1070	402	571
11	759	338	173	97	81	370	339	1350	1920	1030	392	601
12	695	327	168	95	84	361	335	1360	1900	967	388	601
13	634	306	164	93	86	314	339	1380	2010	900	303	531
14	567	296	161	91	86	352	339	1410	1940	823	374	466
15	508	286	154	90	84	370	339	1440	1860	758	383	397
16	463	280	150	91	88	294	352	1700	1680	698	351	345
17	424	270	146	91	93	240	406	2210	1510	657	310	306
18	404	261	141	90	101	214	461	2410	1590	636	298	287
19	384	252	139	88	105	192	431	2500	1680	663	302	264
20	372	240	137	88	105	186	421	2460	1660	716	310	257
21	338	231	135	90	103	183	431	2440	1560	765	327	240
22	324	228	133	91	101	210	441	2540	1420	779	327	233
23	317	220	131	91	99	233	461	2680	1300	779	327	230
24	310	190	129	90	97	257	451	3430	1220	779	352	226
25	290	175	127	88	95	250	446	4000	1200	772	361	223
26	273	171	125	84	93	247	514	4350	1240	737	352	220
27	255	231	123	79	91	243	571	4720	1270	696	383	210
28	240	252	123	77	90	236	657	4960	1250	657	370	207
29	231	240	123	77	---	233	703	4530	1230	619	416	195
30	231	225	121	79	---	226	723	3690	1250	583	402	183
31	222	---	121	81	---	223	---	2820	---	565	388	---
TOTAL	17902	9108	4841	2911	2501	7250	11879	69683	53290	26759	12111	10485
MEAN	577	304	156	93.9	89.3	234	396	2248	1776	863	391	350
MAX	1120	513	211	118	105	402	723	4960	2740	1260	536	601
MIN	222	171	121	77	81	86	198	815	1200	565	298	183
AC-FT	35510	18070	9600	5770	4960	14380	23560	138200	105700	53080	24020	20800

CAL YR 1978 TOTAL 298684 MEAN 818 MAX 4010 MIN 83 AC-FT 592400
WTR YR 1979 TOTAL 228720 MEAN 627 MAX 4960 MIN 77 AC-FT 453700

05020500 ST. MARY RIVER AT INTERNATIONAL BOUNDARY--Continued
(National Stream Quality Accounting Network)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1978 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: February 1978 to current year.
WATER TEMPERATURES: February 1978 to current year.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 298 micromhos Feb. 14, 1979; minimum daily, 141 micromhos June 14, 1979.
WATER TEMPERATURES: Maximum daily, 21.0°C Aug. 23, 1979; minimum daily, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 298 micromhos Feb. 14; minimum daily, 141 micromhos June 14.
WATER TEMPERATURES: Maximum daily, 21.0 °C, Aug. 23; minimum daily, 0.0°C on many days during December to March.

REVISIONS.--The concentrations of total recoverable cadmium, and total recoverable lead for May 31, 1978 (1400 hours), were found in error and have been deleted.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE (DEG C) (00010)	TURBIDITY (NTU) (00076)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)
OCT										
03...	1530	1060	1	190	8.1	18.5	11.5	1.1	9.6	102
NOV										
01...	1430	230	1	199	8.2	17.0	7.0	.75	11.2	107
29...	0900	E240	1	192	8.1	7.5	.0	.50	12.3	99
DEC										
20...	1030	E137	0	205	7.5	-4.0	.0	.40	11.4	96
JAN										
18...	1000	E90	1	225	8.0	-2.5	.0	.80	11.2	90
FEB										
22...	1000	E101	1	221	8.0	-17.0	.0	.70	11.6	93
MAR										
13...	1330	E310	0	245	8.1	10.0	.5	3.1	12.0	98
APR										
17...	1330	397	1	302	8.2	12.0	6.5	12	11.6	111
MAY										
14...	1400	1400	0	241	8.2	16.0	7.5	12	10.9	105
JUN										
19...	1330	1080	40	174	8.2	11.5	10.0	8.2	9.5	98
JUL										
17...	1300	663	0	174	8.4	27.0	16.0	1.3	8.4	97
AUG										
21...	1130	335	2	196	8.4	17.0	14.5	12	9.0	98
SEP										
25...	1300	223	0	195	8.3	22.0	11.5	.70	9.4	100

05020500 ST. MARY RIVER AT INTERNATIONAL BOUNDARY--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)
OCT										
03...	<1	--	69	0	20	4.6	3.9	.2	1.4	74
NOV										
01...	<1	<1	100	8	25	9.1	2.1	.1	.4	92
29...	<1	K5	96	0	24	8.8	1.8	.1	.4	96
DEC										
20...	<1	K1	110	9	28	9.4	2.2	.1	.3	100
JAN										
18...	K1	K5	120	8	29	11	2.3	.1	.6	110
FEB										
22...	K1	K1	120	8	29	11	2.5	.1	.4	110
MAR										
13...	<1	K8	120	13	31	11	3.8	.2	.7	110
APR										
17...	K1	K5	150	9	35	15	9.2	.3	1.1	140
MAY										
14...	K2	K4	130	18	33	11	3.6	.1	.5	110
JUN										
19...	26	58	90	10	23	8.0	1.6	.1	.4	80
JUL										
17...	K2	K4	84	5	21	7.6	1.4	.1	.3	79
AUG										
21...	78	120	93	7	23	8.5	1.9	.1	.5	86
SEP										
25...	K1	K2	100	13	26	8.9	2.1	.1	1.3	89

DATE	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)
OCT										
03...	--	6.2	1.8	.1	2.1	87	85	.12	249	.05
NOV										
01...	--	8.2	.5	.1	2.5	102	103	.14	64.4	.05
29...	--	9.0	.5	.1	2.7	109	105	.15	70.6	.08
DEC										
20...	--	7.5	.3	.0	3.0	114	111	.16	42.2	.08
JAN										
18...	--	8.3	.3	.1	3.3	129	121	.18	31.3	.10
FEB										
22...	--	9.6	.4	.1	3.4	119	123	.16	32.5	.09
MAR										
13...	--	10	.7	.1	3.8	195	127	.27	165	.08
APR										
17...	--	14	.8	.1	4.9	168	164	.23	180	.05
MAY										
14...	1.4	15	.4	.1	3.0	126	133	.17	476	.03
JUN										
19...	--	7.1	.4	.1	2.3	95	91	.13	431	.10
JUL										
17...	--	13	.8	.0	2.7	94	94	.13	168	.08
AUG										
21...	--	13	.3	.1	.7	139	100	.19	126	.07
SEP										
25...	--	9.2	.6	.1	2.7	95	105	.13	57.2	.04

05020500 ST. MARY RIVER AT INTERNATIONAL BOUNDARY--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN,AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C) (00689)
OCT 03...	.01	.24	.25	--	.01	.03	1.5	--	--
NOV 01...	.01	.26	.27	.10	.00	.00	1.4	--	--
29...	.01	.07	.08	.08	.00	.00	--	.7	.3
DEC 20...	.00	.62	.62	.32	.00	.01	.7	--	--
JAN 18...	.00	.21	.21	.19	.02	.01	.7	--	--
FEB 22...	.02	.00	.02	.01	.01	.00	--	2.0	--
MAR 13...	.01	.21	.22	.17	.01	.00	2.0	--	--
APR 17...	.02	.30	.32	.20	.01	.01	5.1	--	--
MAY 14...	.00	.13	.13	.12	.02	.01	--	2.2	.6
JUN 19...	.02	.02	.04	.04	.01	.00	1.7	--	--
JUL 17...	.03	.23	.26	.29	.00	.01	3.8	--	--
AUG 21...	.01	.12	.13	.08	.02	.01	--	3.8	.3
SEP 25...	.04	.61	.65	.66	.05	.03	1.2	--	--

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)
NOV 29...	0900	1	1	100	100	0	<1	0	0
FEB 22...	1000	0	1	100	0	5	0	10	10
MAY 14...	1400	1	0	100	200	1	1	10	0
AUG 21...	1130	1	1	100	100	0	<1	10	0

DATE	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO) (01037)	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)
NOV 29...	0	<3	4	0	170	0	3	0	0
FEB 22...	0	0	1	1	30	0	5	0	10
MAY 14...	1	0	4	0	840	0	30	0	30
AUG 21...	0	<3	1	4	560	20	3	4	30

SASKATCHEWAN RIVER BASIN

05020500 ST. MARY RIVER AT INTERNATIONAL BOUNDARY--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOVERABLE (UG/L AS HG) (71900)	MERCURY DISSOLVED (UG/L AS HG) (71890)	SELENIUM, TOTAL (UG/L AS SE) (01147)	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	SILVER, TOTAL RECOVERABLE (UG/L AS AG) (01077)	SILVER, DISSOLVED (UG/L AS AG) (01075)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)	ZINC, DISSOLVED (UG/L AS ZN) (01090)
NOV 29...	2	.0	.0	1	0	0	0	10	<3
FEB 22...	8	.0	.0	0	0	0	0	10	10
MAY 14...	10	.0	.0	0	0	0	0	40	10
AUG 21...	1	.1	.0	0	0	0	4	10	<3

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	156	193	206	213	243	240	233	278	166	152	160	172
2	152	194	202	219	242	248	242	269	160	154	162	171
3	153	173	222	224	248	258	232	247	154	153	161	172
4	154	173	207	229	236	247	235	248	152	157	159	170
5	155	178	202	242	240		238	245	149	156	160	167
6	155	177	188	233	244	218	262	236	145	158	163	164
7	158	177	208	220	258	253	253	237	147	153	167	159
8	155	187	212	229	243	---	268	221	148	154	166	164
9	156	184	216	222	239	---	250	225	149	157	165	168
10	157	202	208	223	266	---	264	238	157	151	166	160
11	158	191	208	239	283	253	252	232	146	152	167	165
12	157	197	207	247	254	249	242	236	148	154	166	170
13	162	195	210	222	217	265	248	230	142	155	167	163
14	165	195	208	229	298	268	250	225	141	159	169	169
15	168	212	210	222	238	260	255	221	145	166	171	173
16	170	195	216	222	229	269	255	222	143	162	173	176
17	174	258	213	223	225	254	263	203	148	166	175	180
18	175	243	214	220	233	263	261	201	147	159	175	182
19	177	268	217	226	229	259	256	198	143	158	176	181
20	---	231	228	---	240	262	258	200	149	155	178	183
21	---	197	234	---	229	260	258	191	149	153	181	185
22	---	191	224	---	229	252	257	191	149	153	178	187
23	---	191	219	261	230	264	255	188	148	150	175	188
24	---	207	224	235	231	253	261	185	150	155	174	190
25	---	204	236	243	234	262	261	183	148	154	174	192
26	---	202	262	237	231	252	269	175	144	157	175	190
27	---	197	225	260	229	252	269	171	143	157	175	191
28	199	204	252	260	236	247	264	170	145	158	166	195
29	191	195	226	238	---	252	269	171	143	158	167	200
30	196	204	224	267	---	243	282	172	142	158	170	198
31	198	---	223	262	---	238	---	178	---	157	171	---
MEAN	167	201	216	235	241	253	255	212	148	156	169	178

WTR YR 1979 MEAN 208 MAX 298 MIN 122

05020500 ST. MARY RIVER AT INTERNATIONAL BOUNDARY--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13.5	9.0	1.0	.0	.0	.0		---	11.0	15.5	19.0	19.0
2	12.5	7.0	2.0	.0	.0	.0		---	11.5	15.0	20.0	16.0
3	13.0	8.0	2.0	.0	.0	.0		---	13.5	16.5	19.0	19.0
4	13.5	7.0	1.0	.0	.0	.0		---	13.0	14.5	19.0	15.5
5	13.0	5.0	2.0	.0	.0	.0		---	12.0	18.5	18.5	17.0
6	13.5	3.0	1.0	.0	.0	---		---	10.0	17.0	19.0	17.5
7	12.5	7.0	1.0	.0	.0	---		---	10.0	18.5	19.0	18.0
8	12.0	2.0	1.0	.0	.0	---		---	10.0	17.5	19.0	17.5
9	13.5	1.0	1.0	.0	.0	---		---	11.5	18.5	19.0	17.0
10	12.0	2.0	1.0	.0	.0	---		---	13.0	17.0	20.0	15.5
11	12.0	.0	1.0	.0	.0	---		---	14.0	16.0	18.5	15.0
12	9.5	1.0	1.0	.0	.0	---		5.0	15.0	16.0	18.0	16.5
13	13.0	.0	1.0	.0	.0	---		5.0	13.5	16.5	16.5	17.0
14	10.0	2.0	1.0	.0	.0	---		9.5	13.5	16.5	16.0	17.0
15	13.5	2.5	1.0	.0	.0	---		10.0	13.0	16.5	18.5	17.0
16	12.5	3.5	1.0	.0	.0	---		8.5	11.5	18.5	19.5	17.0
17	13.0	1.0	1.0	.0	.0	---		8.5	11.0	18.5	20.5	17.5
18	13.0	2.0	1.0	.0	.0	---		10.0	12.0	20.0	19.5	18.0
19	13.0	.0	1.0	.0	.0	---		9.5	12.0	18.5	18.5	17.0
20	---	2.0	1.0	.0	.0	---		11.5	12.5	19.0	17.5	16.0
21	---	3.5	1.0	.0	.0	---		11.0	13.0	19.0	19.0	17.0
22	---	1.0	1.0	.0	.0	---		10.0	15.0	20.0	19.5	15.0
23	---	1.0	1.5	.0	.0	---		13.0	14.5	20.0	21.0	17.0
24	---	1.5	1.0	.0	.0	---		12.0	14.0	17.0	16.5	17.5
25	---	3.0	1.0	.0	.0	---		12.0	16.5	15.0	16.0	17.5
26	---	3.0	.0	.0	.0	---		9.5	15.5	19.0	19.0	16.0
27	---	3.0	.0	.0	.0	---		12.0	15.5	16.5	18.5	16.0
28	6.0	3.0	.0	.0	.0	---		8.0	17.5	17.5	18.5	14.5
29	7.0	1.5	.0	.0	---	---		10.5	18.0	19.5	20.0	15.0
30	6.0	1.0	.0	.0	---	---		8.5	16.0	19.5	20.0	14.0
31	6.5	---	.0	.0	---	---		10.0	---	19.0	17.0	---
MEAN	11.5	3.0	1.0	.0	.0	.0		9.5	13.5	17.5	18.5	17.0

WTR YR 1979 MEAN 9.0 MAX 21.0 MIN .0

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPER-ATURE (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT						
03...	1530	11.5	1060	7	20	86
NOV						
01...	1430	7.0	234	7	4.4	88
29...	0900	.0	E240	1	.65	64
DEC						
20...	1030	.0	E137	2	.74	95
JAN						
18...	1000	.0	E90	3	.73	80
MAR						
13...	1330	.5	E314	16	14	91
APR						
17...	1330	6.5	397	34	36	91
MAY						
14...	1400	7.5	1400	48	181	72
JUN						
19...	1330	10.0	1680	30	136	83
JUL						
17...	1300	16.0	663	4	7.2	66
AUG						
21...	1130	14.5	335	34	31	98
SEP						
25...	1300	11.5	223	2	1.2	69

05020500 ST. MARY RIVER AT INTERNATIONAL BOUNDARY--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

PERIPHYTON

DATE	TIME	LENGTH OF EXPOSURE (DAYS) (00022)	PERIPHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M (00573)	PERIPHYTON BIOMASS ASH WEIGHT G/SQ M (00572)	CHLOR-A PERIPHYTON CHROMOGRAPHIC FLUOROM (MG/M2) (70957)	CHLOR-B PERIPHYTON CHROMOGRAPHIC FLUOROM (MG/M2) (70958)	BIOMASS CHLOROPHYLL RATIO PERIPHYTON (UNITS) (70950)
MAY							
14...	1400	27	.070	.050	.009	.000	4444
JUL							
17...	1300	28	.870	.710	.500	.000	320
AUG							
21...	1130	35	4.17	3.94	1.23	.000	187
SEP							
25...	1300	35	1.42	1.18	.730	.000	329

PHYTOPLANKTON

DATE TIME	NOV 29,78 0900		MAR 13,79 1330		MAY 14,79 1400		JUN 19,79 1330	
TOTAL CELLS/ML	230		570		680		39	
DIVERSITY: DIVISION	0.3		0.5		0.0		0.0	
.CLASS	0.3		0.5		0.0		0.0	
..ORDER	0.7		0.5		0.3		0.0	
...FAMILY	2.3		0.6		2.8		0.9	
....GENUS	2.8		1.6		3.0		0.9	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)								
.CHLOROPHYCEAE								
..ZYGNEMATALES								
...DESMIDIACEAE								
....SPONDYLOSIUM	14	6	--	-	--	-	--	-
CHRYSOPHYTA								
.BACILLARIOPHYCEAE								
..CENTRALES								
...COSCINODISCACEAE								
....CYCLOTELLA	14	6	--	-	42	6	--	-
..PENNALES								
...ACHNANTHACEAE								
....ACHNANTHES	58#	25	14	2	130#	18	13#	33
...CYMBELLACEAE								
....CYMBELLA	--	-	14	2	42	6	--	-
...DIATOMACEAE								
....DIATOMA	29	13	--	-	130#	18	--	-
...FRAGILARIACEAE								
....ASTERIONELLA	58#	25	--	-	--	-	--	-
....FRAGILARIA	--	-	14	2	14	2	--	-
....SYNEDRA	29	13	14	2	130#	18	26#	67
...GOMPHONEMATACEAE								
....GOMPHONEMA	--	-	--	-	14	2	--	-
...NAVICULACEAE								
....NAVICULA	14	6	--	-	110#	16	--	-
....NEIDIUM	14	6	--	-	--	-	--	-
....PINNULARIA	--	-	--	-	14	2	--	-
...NITZSCHIACEAE								
....HANTZSCHIA	--	-	--	-	14	2	--	-
....NITZSCHIA	--	-	--	-	56	8	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)								
.CYANOPHYCEAE								
..HORMOGONALES								
...OSCILLATORIACEAE								
....LYNGBYA	--	-	230#	40	--	-	--	-
....OSCILLATORIA	--	-	290#	50	--	-	--	-

05020500 ST. MARY RIVER AT INTERNATIONAL BOUNDARY--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

PHYTOPLANKTON

DATE	JUL 17,79	AUG 21,79	SEP 25,79
TIME	1300	1130	1300
TOTAL CELLS/ML	72	310	190
DIVERSITY: DIVISION	0.7	1.3	0.8
.CLASS	0.7	1.3	0.8
..ORDER	0.7	1.6	1.5
...FAMILY	1.9	1.8	2.0
....GENUS	1.9	1.8	2.0

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...OOCYSTACEAE						
....OOCYSTIS	--	-	26	8	--	-
...SCENEDESMACEAE						
....CRUCIGENIA	--	-	--	-	43#	23
..ZYGNEMATALES						
...DESMIDIACEAE						
....COSMARIUM	14#	20	13	4	--	-
CHRYSOPHYTA						
.BACILLARIOPHYCEAE						
..CENTRALES						
...COSCINODISCACEAE						
....CYCLOTELLA	--	-	13	4	43#	23
..PENNALES						
...ACHNANTHACEAE						
....ACHNANTHES	--	-	--	-	57#	31
...CYMBELLACEAE						
....CYMBELLA	14#	20	--	-	--	-
...FRAGILARIACEAE						
....FRAGILARIA	14#	20	--	-	--	-
....SYNEDRA	--	-	26	8	--	-
...NITZSCHIACEAE						
....NITZSCHIA	29#	40	39	13	43#	23
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..HORMOGONALES						
...OSCILLATORIACEAE						
....OSCILLATORIA	--	-	190#	63	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
 * - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

06012500 RED ROCK RIVER BELOW LIMA RESERVOIR, NEAR MONIDA, MT

LOCATION.--Lat 44°39'22", long 112°22'14", in NE¼SE¼SE¼ sec. 31, T.13 S., R.6 W., Beaverhead County, Hydrologic Unit 10020001, on right bank just downstream from Lima Reservoir, 7 mi (11 km) northwest of Monida.

DRAINAGE AREA.--570 mi^2 (1,476 km^2).

PERIOD OF RECORD.--January 1911 to December 1918, April 1919, May 1925 to October 1933, April 1934 to September 1935, May 1936 to October 1938, May 1939 to September 1969, June 1974 to current year (no winter records). Monthly discharge only for some periods, published in WSP 1309. Prior to October 1950, published as "below Red Rock Reservoir."

REVISED RECORDS.--WSP 1309: 1935. WSP 1389: 1912, 1934. WSP 1559: Drainage area.

GAGE.--Water-stage recorder and sharp-crested weir. Altitude of gage is 6,530 ft (1,990 m), estimated from spillway elevation based on Montana Department of Natural Resources and Conservation datum. Prior to Oct. 1, 1978, at datum 1.00 ft (0.305 m) higher. See WSP 1709 for history of nonrecording gage changes prior to May 8, 1939.

REMARKS.--Seasonal records good. Flow regulated by Lima Reservoir (see p. 605, 612). No storage during 1934. Diversions for irrigation of about 10,000 acres (40.5 km^2) above reservoir. Several observations of water temperature were made during the year and are available in files of Helena district office.

AVERAGE DISCHARGE.--48 years (1911-18, 1925-33, 1934-35, 1936-38, 1939-69), 143 ft^3/s (4.050 m^3/s), 103,600 acre-ft/yr (128 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge observed, 2,500 ft^3/s (70.8 m^3/s) May 15, 1933, gage height, 5.40 ft (1.646 m), estimated by dam tender, released to prevent failure of dam; no flow at times.

EXTREMES FOR CURRENT SEASON.--Maximum discharge, 650 ft^3/s (18.4 m^3/s) June 14, 15, gage height, 3.59 ft (1.094 m); no flow Oct. 9-24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16						16	70	544	478	213	115
2	15						16	141	511	392	196	115
3	15						16	199	506	288	196	114
4	15						16	218	558	274	201	80
5	15						16	215	589	414	201	49
6	15						16	225	585	560	201	48
7	15						16	260	584	636	232	48
8	6.3						16	261	585	638	250	48
9	.00						16	262	585	636	250	48
10	.00						16	264	592	633	292	48
11	.00						16	263	638	547	364	48
12	.00						16	264	638	455	389	48
13	.00						16	266	639	433	389	47
14	.00						16	266	642	433	382	47
15	.00						16	228	643	433	382	47
16	.00						16	209	637	433	375	47
17	.00						16	79	632	382	375	138
18	.00						16	35	636	314	317	253
19	.00						16	86	641	314	288	234
20	.00						24	100	641	307	282	34
21	.00						31	101	640	307	250	17
22	.00						31	145	639	301	230	15
23	.00						31	185	633	295	228	14
24	.00						31	185	585	295	225	13
25	14						31	307	551	311	222	13
26	57						31	487	494	320	220	9.7
27	57						31	530	478	314	216	1.5
28	57						31	574	478	266	212	.84
29	56						31	602	478	250	157	.55
30	55						31	601	478	250	116	.55
31	55						---	602	---	250	116	---
TOTAL	463.30						638	8230	17480	12161	7967	1741.14
MEAN	14.9						21.3	265	583	392	257	58.0
MAX	57						31	602	643	638	389	253
MIN	.00						16	35	478	250	116	.55
AC-FT	919						1270	16320	34670	24120	15800	3450

06013500 BIG SHEEP CREEK BELOW MUDDY CREEK, NEAR DELL, MT

LOCATION.--Lat 44°39'19", long 112°46'41", in SW¼NW¼SE¼ sec.35, T.13 S., R.10 W., Beaverhead County, Hydrologic Unit 10020001, on left bank 2.2 mi (3.5 km) downstream from Muddy Creek, 6.5 mi (10.5 km) southwest of Dell, and 8.5 mi (13.7 km) upstream from mouth.

DRAINAGE AREA.--278 mi^2 (720 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April to September 1936, May 1946 to September 1953. Annual maximums and daily flows for water years 1961-76 on file in Helena district office. October 1976 to September 1979 (discontinued). Published as Sheep Creek near Dell 1936, and Sheep Creek below Muddy Creek, near Dell 1946-53, 1960-65.

REVISED RECORDS.--WDR MT-75-1: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 6,390 ft (1,948 m), from topographic map. Apr. 21 to Sept. 30, 1936, nonrecording gage at site about 3 mi (5 km) downstream at different datum.

REMARKS.--Water-discharge records good except those for winter period, which are poor. No gage-height record Dec. 30-Feb. 6. Diversions for irrigation of about 6,600 acres (27.6 km^2) above station.

AVERAGE DISCHARGE.--26 years (1947-53, 1961-79), 65.0 ft^3/s (1.841 m^3/s), 47,090 acre-ft/yr (58.1 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 909 ft^3/s (25.7 m^3/s) Apr. 18, 1952, gage height, 7.72 ft (2.353 m), from rating curve extended above 290 ft^3/s (8.21 m^3/s); minimum observed, 26 ft^3/s (0.74 m^3/s) May 11-13, 1936, gage height, 1.90 ft (0.579 m), site and datum then in use.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 289 ft^3/s (8.18 m^3/s) Apr. 17, gage height, 5.14 ft (1.567 m), only peak above base of 210 ft^3/s (5.95 m^3/s); minimum, 30 ft^3/s (0.85 m^3/s) Aug. 2,3, gage height, 3.45 ft (1.052 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	64	66	58	38	41	48	51	142	76	40	44	52
2	63	70	58	41	42	48	51	131	72	40	36	51
3	62	71	58	43	42	47	50	119	65	40	34	50
4	65	75	58	42	43	46	51	116	57	39	37	49
5	63	65	57	40	43	46	52	115	57	39	38	49
6	63	56	55	39	43	46	61	113	60	40	38	49
7	63	62	53	39	44	47	69	80	63	41	40	48
8	62	69	50	43	47	48	70	84	63	40	41	46
9	67	72	52	47	47	47	75	81	60	40	42	45
10	67	47	52	45	47	46	75	82	57	41	41	45
11	67	45	52	44	47	46	72	105	56	43	41	46
12	67	50	54	45	47	47	73	103	53	43	43	43
13	66	54	52	45	47	47	80	89	46	43	51	44
14	67	58	52	43	48	47	88	96	46	42	60	45
15	67	58	52	45	47	47	105	99	46	41	63	43
16	67	58	50	45	46	48	170	114	48	42	58	42
17	68	59	50	44	47	48	238	120	49	42	58	42
18	75	60	48	45	47	48	175	106	51	42	60	41
19	71	61	48	45	47	48	110	100	58	43	58	41
20	70	60	45	44	47	48	93	93	54	44	57	41
21	68	60	47	43	47	46	86	92	51	44	58	41
22	63	61	45	47	47	47	105	94	54	47	59	41
23	62	60	45	45	47	46	139	92	54	49	59	40
24	67	59	46	47	47	48	115	95	51	49	58	40
25	65	57	47	48	47	50	107	87	50	49	65	41
26	63	55	43	47	46	49	118	80	51	48	57	42
27	63	57	46	46	47	51	131	82	46	49	57	42
28	65	57	45	43	47	53	155	96	42	50	59	42
29	70	57	42	41	---	55	145	109	41	49	55	41
30	56	57	38	39	---	55	142	100	42	48	52	41
31	56	---	38	41	---	52	---	85	---	47	52	---
TOTAL	2022	1796	1536	1349	1284	1495	3052	3102	1621	1354	1573	1323
MEAN	65.2	59.9	49.5	43.5	45.9	48.2	102	100	54.0	43.7	50.7	44.1
MAX	75	75	58	48	48	55	238	142	76	50	65	52
MIN	56	45	38	38	41	46	50	80	41	39	34	40
AC-FT	4010	3560	3050	2680	2550	2970	6050	6150	3220	2690	3120	2620

CAL YR 1978 TOTAL 24252 MEAN 66.4 MAX 150 MIN 36 AC-FT 48100
WTR YR 1979 TOTAL 21507 MEAN 58.9 MAX 238 MIN 34 AC-FT 42660

06013500 BIG SHEEP CREEK BELOW MUDDY CREEK, NEAR DELL, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water year 1977 to August 1979 (discontinued).

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: March to June 1977, April to July 1978, April to July 1979 (discontinued).
SUSPENDED-SEDIMENT DISCHARGE: March to July 1977, April to July 1978, April to July 1979 (discontinued).

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum daily, 24.0°C June 26, July 18, 19, 1979.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 4,190 mg/L June 8, 1977; minimum daily mean, 6 mg/L Apr. 3, 1979.
SEDIMENT LOADS: Maximum daily, 1,690 tons (1,530 megagrams) June 8, 1977; minimum daily, 0.81 ton (0.73 megagram) Apr. 3, 1979.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum daily, 24.0°C June 26, July 18, 19.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 793 mg/L Apr. 17; minimum daily mean, 6 mg/L Apr. 3.
SEDIMENT LOADS: Maximum daily, 510 tons (463 megagrams) Apr. 17; minimum daily, 0.81 ton (0.73 megagram) Apr. 3.

REVISIONS.--The minimum and maximum daily sediment concentrations for water years 1977-78 have been revised to 9 mg/L Mar. 23 and 4,190 mg/L June 8, respectively, superseding those previously published.

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1							11.0	6.5	15.5	19.5		
2							18.0	---	19.0	19.5		
3							9.5	---	21.0	23.0		
4							9.0	12.0	20.0	21.0		
5							14.0	8.0	19.5	20.5		
6							13.0	9.0	13.5	18.5		
7							12.0	11.0	13.0	21.5		
8							13.0	7.0	14.0	22.0		
9							9.0	10.0	18.0	22.5		
10							8.0	13.0	20.0	22.0		
11							10.0	14.5	21.0	20.0		
12							15.0	14.0	20.0	19.5		
13							10.0	14.0	18.0	22.5		
14							11.0	14.0	19.5	23.0		
15							11.5	14.0	18.5	23.5		
16							9.5	14.5	18.5	23.0		
17							3.0	15.0	21.0	22.5		
18							2.0	16.5	14.5	24.0		
19							2.0	17.5	15.0	24.0		
20							2.0	19.0	19.0	21.5		
21							8.0	19.0	18.0	21.0		
22							11.0	20.0	19.0	16.0		
23							4.5	18.0	20.0	23.0		
24							2.0	16.0	19.5	22.0		
25							5.0	19.0	21.0	20.5		
26							4.5	21.0	24.0	22.5		
27							14.5	19.0	23.5	18.0		
28							13.0	9.0	23.5	22.0		
29							5.0	11.5	15.5	19.5		
30							6.0	14.5	20.0	22.0		
31							---	15.5	---	14.0		
MEAN							9.0	14.0	19.0	21.0		

WTR YR 1979 MEAN 16.0 MAX 24.0 MIN 2.0

06013500 BIG SHEEP CREEK BELOW MUDDY CREEK, NEAR DELL, MT--Continued

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	58	8.0	229	88	32	6.6	8	.86				
2	35	4.8	212	75	38	7.4	16	1.7				
3	6	.81	190	61	35	6.1	28	3.0				
4	10	1.4	157	50	32	4.9	17	1.8				
5	15	2.1	133	41	31	4.8	18	1.9				
6	30	4.9	119	36	39	6.3	16	1.7				
7	64	12	84	18	43	7.3	18	2.0				
8	75	14	55	12	28	4.8	17	1.8				
9	80	16	45	9.8	29	4.7	18	1.9				
10	76	15	47	10	33	5.1	15	1.7				
11	58	11	93	26	39	5.9	15	1.7				
12	46	9.1	69	19	36	5.2	15	1.7				
13	77	17	42	10	33	4.1	11	1.3				
14	98	23	50	13	38	4.7	13	1.5				
15	227	64	290	78	34	4.2	15	1.7				
16	610	291	473	146	19	2.5	19	2.2				
17	793	510	468	152	17	2.2	19	2.2				
18	394	202	250	72	25	3.4	14	1.6				
19	203	60	140	38	24	3.8	15	1.7				
20	139	35	134	34	32	4.7	18	2.1				
21	107	25	100	25	31	4.3	17	2.0				
22	116	33	95	24	22	3.2	22	2.8				
23	203	76	86	21	24	3.5	19	2.5				
24	145	45	78	20	17	2.3	11	1.5				
25	156	45	53	12	16	2.2	9	1.2				
26	205	65	46	9.9	14	1.9	11	1.4				
27	184	65	72	16	14	1.8	11	1.5				
28	259	108	91	24	11	1.2	11	1.5				
29	269	105	79	23	9	1.0	9	1.2				
30	236	90	65	18	10	1.1	12	1.6				
31	---	---	43	9.9	---	---	10	1.3				
TOTAL	---	1958.11	---	1191.6	---	121.2	---	54.56				

TOTAL LOAD FOR YEAR: 3325.47 TONS.

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPERATURE (DEG C) (00010)	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT						
03...	1200	7.0	64	23	4.0	85
NOV						
14...	1000	1.0	55	20	3.0	93
DEC						
12...	1500	5.0	55	47	7.0	79
JAN						
03...	0930	1.0	44	40	4.8	85
FEB						
06...	0915	5.0	43	60	7.0	88
MAR						
29...	1120	6.0	52	17	2.4	92
MAY						
07...	1330	8.0	70	84	16	62
JUN						
05...	1530	14.0	61	28	4.6	88
JUL						
05...	1630	19.0	40	12	1.3	90
31...	1245	14.0	48	10	1.3	85
AUG						
29...	1400	15.0	57	11	1.7	75

06014500 RED ROCK RIVER AT RED ROCK, MT

LOCATION.--Lat 44°55'02", long 112°49'48", in SW¼SE¼ sec.33, T.10 S., R.10 W., Beaverhead County, Hydrologic Unit 10020001, on right bank 0.6 mi (1.0 km) downstream from bridge on county road, 1.8 mi (2.9 km) upstream from Clark Canyon Reservoir flow line, and 1.3 mi (2.1 km) northwest of Red Rock.

DRAINAGE AREA.--1,548 mi² (4,010 km²).

PERIOD OF RECORD.--January to October 1890 (monthly discharge only), October 1950 to September 1952, May 1974 to September 1975 (no winter records), October 1975 to current year.

GAGE.--Water-stage recorder. Datum of gage is 5,582.45 ft (1,701.531 m) National Geodetic Vertical Datum of 1929. Prior to May 1974, records collected at site 0.6 mi (1.0 km) upstream at different datum.

REMARKS.--Records good except those for Dec.7 - Feb. 28, which are poor. Flow partly regulated by Lima Reservoir (see p.). Diversions for irrigation of about 39,000 acres (158 km²) above station. Several observations of water temperature were made during the year and are available in files of Helena district office.

AVERAGE DISCHARGE.--6 years, 214 ft³/s (6.060 m³/s), 155,000 acre-ft/yr (191 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,130 ft³/s (32.0 m³/s) May 16, 1975, gage height, 4.23 ft (1.289 m); maximum gage height, 6.35 ft (1.935 m) Jan. 20, 1979 (backwater from ice); minimum daily discharge, 4.0 ft³/s (0.11 m³/s) May 24, 1951, site and datum then in use.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 418 ft³/s (11.8 m³/s) Apr. 17, gage height, 3.31 ft (1.009 m); maximum gage height, 6.35 ft (1.935 m) Jan. 20 (backwater from ice); minimum daily discharge, 27 ft³/s (0.76 m³/s) May 27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	239	222	215	120	120	154	174	289	129	123	229	234
2	239	234	205	130	120	154	174	279	133	123	210	224
3	238	236	205	135	130	154	174	300	107	102	187	224
4	233	243	205	115	130	158	174	320	91	96	174	229
5	232	238	200	94	130	150	174	329	73	89	154	229
6	232	230	200	96	135	154	178	344	73	65	123	224
7	230	234	183	90	135	162	191	324	75	71	102	224
8	226	244	175	100	135	162	191	334	82	79	102	215
9	226	256	180	105	135	158	196	339	84	102	107	191
10	222	241	185	110	135	154	196	334	65	107	99	191
11	219	239	200	120	135	154	191	334	67	147	102	191
12	215	247	210	110	140	158	183	339	65	154	116	187
13	214	247	195	110	140	162	187	329	55	196	136	191
14	214	244	200	120	150	162	191	320	57	219	158	205
15	214	242	205	125	150	162	200	320	64	210	154	200
16	216	253	180	115	150	166	234	310	64	210	158	196
17	219	236	200	115	150	170	350	300	65	210	187	191
18	223	243	190	115	150	170	379	255	65	210	205	239
19	223	241	185	115	150	166	305	170	75	210	200	305
20	220	220	180	120	150	166	255	154	73	219	200	300
21	218	230	180	125	150	166	234	150	79	219	215	215
22	216	236	175	125	150	166	234	123	91	229	210	205
23	212	236	175	120	155	166	264	99	102	249	200	200
24	210	232	165	120	155	170	305	86	116	239	170	196
25	205	228	160	120	155	174	289	57	133	244	174	178
26	207	227	160	120	155	174	270	33	129	255	191	178
27	223	225	140	115	155	174	284	27	129	270	215	174
28	225	219	130	110	155	183	300	29	123	274	224	174
29	229	205	120	110	---	183	300	65	113	270	234	170
30	222	210	115	110	---	183	294	116	123	260	229	166
31	216	---	115	115	---	178	---	123	---	260	229	---
TOTAL	6877	7022	5533	3550	4000	5113	7091	6931	2700	5711	5394	6246
MEAN	222	234	178	115	143	165	236	224	90.0	184	174	208
MAX	239	256	215	135	155	183	379	344	133	274	234	305
MIN	205	205	115	90	120	150	174	27	55	65	99	166
AC-FT	13640	13930	10970	7040	7930	10140	14060	13750	5360	11330	10700	12390

CAL YR 1978 TOTAL 79239 MEAN 217 MAX 516 MIN 71 AC-FT 157200
WTR YR 1979 TOTAL 66168 MEAN 181 MAX 379 MIN 27 AC-FT 131200

06015300 CLARK CANYON RESERVOIR NEAR GRANT, MT

LOCATION.--Lat 45°00'06", long 112°51'27", in SE¼SW¼ sec. 32, T.9 S., R.10 W., Beaverhead County, Hydrologic Unit 10020001, in shaft house near left end of dam on Beaverhead River, 1.5 mi (2.4 km) upstream from Clark Canyon Creek, and 10 mi (16 km) east of Grant.

DRAINAGE AREA.--2,321 mi^2 (6,011 km^2).

PERIOD OF RECORD.--May 1964 to current year (monthend contents only). Records of daily elevations are in files of Helena district office.

GAGE.--Water-stage recorder in shaft house. Datum of gage is referenced to National Geodetic Vertical Datum of 1929 (levels by Bureau of Reclamation).

REMARKS.--Reservoir is formed by zoned earthfill dam with concrete control works and spillway completed in October 1964. Storage began Aug. 28, 1964 (uncontrolled storage began June 10, 1964). Usable capacity, 257,200 acre-ft (317 hm^3) between elevation 5,455.00 ft (1,662.684 m), invert of outlet works, and 5,560.40 ft (1,694.810 m), top of flood control. Dead storage, 61 acre-ft (75,200 m^3) below elevation 5,455.00 ft (1,662.684 m). Normal operating level, 177,500 acre-ft (219 hm^3) at elevation 5,546.00 ft (1,690.421 m). Minimum operating level, 1,450 acre-ft (1.79 hm^3) at elevation 5,470.60 ft (1,667.439 m). Figures given herein represent usable contents; total contents published in previous water-supply papers and annual reports for May 1964 to September 1975. Water is used for irrigation, flood control, and recreation.

COOPERATION.--Elevations and capacity table furnished by Water and Power Resources Service.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily contents, 236,600 acre-ft (292 hm^3) July 22, 1975 (elevation, 5,556.88 ft or 1,693.737 m); minimum since normal operating level was reached, 58,960 acre-ft (72.7 hm^3) Oct. 11, 1974 (elevation, 5,516.80 ft or 1,681.521 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents at 2400, 189,400 acre-ft (233 hm^3) May 22, elevation, 5,548.29 ft (1,685.849 m); minimum, 107,300 acre-ft (132 hm^3) Aug. 26, elevation, 5,531.00 ft (1,685.849 m).

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Elevation (feet)	Contents (acre-feet)	Change in Contents (acre-feet)
Sept. 30	5,537.95	137,900	---
Oct. 31	5,539.16	143,600	+ 5,700
Nov. 30	5,540.65	150,700	+ 7,100
Dec. 31	5,541.50	154,900	+ 4,200
CAL YR 1978			+ 7,900
Jan. 31	5,541.50	154,900	0
Feb. 28	5,541.94	157,000	+ 2,100
Mar. 31	5,543.54	165,000	+ 8,000
Apr. 30	5,546.54	180,300	+15,300
May 31	5,547.85	187,100	+ 6,800
June 30	5,541.84	156,500	-30,600
July 31	5,534.99	124,400	-32,100
Aug. 31	5,531.05	107,500	-16,900
Sept. 30	5,532.20	112,300	+ 4,800
WTR YR 1979			-25,600

06015400 BEAVERHEAD RIVER NEAR GRANT, MT

LOCATION.--Lat 45°00'12", long 112°51'10", in NW¼SW¼SE¼ sec.32, T.9 S., R.10 W., Beaverhead County, Hydrologic Unit 10020002, on right bank 0.4 mi (0.6 km) downstream from Clark Canyon Dam, 1.3 mi (2.1 km) upstream from Clark Canyon Creek, and 10.3 mi (16.6 km) east of Grant.

DRAINAGE AREA.--2,322 mi² (6,014 km²).

PERIOD OF RECORD.--September 1962 to current year. Prior to October 1968, published as "near Armstead."

GAGE.--Water-stage recorder. Datum of gage is 5,442.78 ft (1,658.959 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Diversions for irrigation of about 76,500 acres (310 km²) above station. Flow completely regulated by Clark Canyon Reservoir (see preceding page). Several observations of water temperature were made during the year and are available in files of Helena district office.

AVERAGE DISCHARGE.--17 years, 388 ft³/s (10.99 m³/s), 281,100 acre-ft/yr (347 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,110 ft³/s (59.8 m³/s) Feb. 7, 1963, gage height, 7.19 ft (2.192 m); no flow part of Oct. 1, 1968, when gates in dam were closed; minimum daily, 22 ft³/s (0.62 m³/s) Oct. 16, 1974.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,040 ft³/s (29.5 m³/s) June 15, gage height, 5.52 ft (1.682 m); maximum gage height, 5.56 ft (1.695 m) July 24 (backwater from aquatic growth); minimum daily discharge, 163 ft³/s (4.62 m³/s) Sept. 5, 6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	244	204	204	213	187	185	190	195	654	764	725	176
2	245	207	204	213	187	186	190	193	654	715	721	176
3	231	207	204	213	187	187	190	193	696	687	726	177
4	205	205	205	213	187	187	190	193	706	645	718	169
5	207	204	204	213	187	188	190	193	730	623	730	163
6	207	205	204	213	186	188	191	194	799	644	774	163
7	205	204	207	213	185	187	192	195	850	654	800	165
8	203	204	206	213	185	187	193	196	840	621	804	164
9	179	208	204	213	185	187	193	196	840	645	765	165
10	176	207	204	213	185	187	193	196	815	661	749	170
11	222	205	204	208	186	188	193	196	799	710	714	190
12	225	204	207	187	186	189	193	196	861	709	701	196
13	216	207	207	187	186	190	193	197	908	715	671	210
14	202	207	207	187	185	190	193	198	940	736	597	220
15	200	207	207	187	185	190	193	213	1010	757	510	225
16	207	206	207	187	186	190	193	286	1030	771	474	225
17	210	206	207	187	186	190	193	313	1010	820	431	238
18	210	206	207	187	186	189	193	317	1030	867	397	241
19	210	205	207	187	187	188	193	324	989	882	402	220
20	210	204	209	187	186	188	193	351	940	874	362	222
21	210	204	207	187	185	188	193	491	930	870	370	229
22	207	204	207	187	185	188	193	586	898	864	341	216
23	210	204	206	187	185	188	193	676	867	878	302	216
24	208	204	206	187	185	188	193	751	862	860	293	217
25	207	207	207	187	185	188	193	762	877	818	295	216
26	209	206	207	187	185	189	193	797	877	799	269	216
27	208	204	207	187	185	189	194	811	867	756	256	214
28	207	204	210	187	185	191	195	820	877	726	216	213
29	206	206	210	187	---	192	196	772	820	707	203	213
30	207	204	210	187	---	190	196	716	799	703	192	213
31	207	---	210	187	---	190	---	687	---	741	174	---
TOTAL	6502	6159	6404	6078	5200	5842	5781	12424	25815	23226	15742	6062
MEAN	210	205	207	196	186	188	193	401	861	749	508	202
MAX	245	208	210	213	187	192	196	820	1030	882	804	241
MIN	176	204	204	187	185	185	190	193	654	621	174	163
AC-FT	12900	12220	12700	12060	10310	11590	11470	24640	51200	46070	31220	12020

CAL YR 1978 TOTAL 125609 MEAN 345 MAX 934 MIN 123 AC-FT 249500
WTR YR 1979 TOTAL 125235 MEAN 343 MAX 1030 MIN 163 AC-FT 248400

06016000 BEAVERHEAD RIVER AT BARRETTS, MT

LOCATION.--Lat 45°06'59", long 112°44'59", in SW¼SE¼ sec.19, T.8 S., R.9 W., Beaverhead County, Hydrologic Unit 10020002, on left bank 1 mi (2 km) upstream from Barretts, 2 mi (3 km) downstream from Grasshopper Creek, and 8.9 mi (14.3 km) southwest of Dillon.

DRAINAGE AREA.--2,737 mi² (7,089 km²).

PERIOD OF RECORD.--August 1907 to current year. Monthly discharge only for some periods, published in WSP 1309. Prior to October 1963, published as "at Barratts".

REVISED RECORDS.--WSP 1279: 1908(M), 1910-12(M), 1929(M), 1935-36. WSP 1559: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 5,268.17 ft (1,605.738 m) National Geodetic Vertical Datum of 1929. Prior to Oct. 19, 1934, nonrecording gages at same site and datum.

REMARKS.--Water-discharge records good except those for May and June, which are fair. Some regulation by Lima Reservoir (see p. 605,612) and nearly complete regulation by Clark Canyon Reservoir (see p. 42) since August 1964. Diversions for irrigation of about 90,000 acres (364 km²) above station.

AVERAGE DISCHARGE.--72 years, 425 ft³/s (12.04 m³/s), 307,900 acre-ft/yr (380 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,720 ft³/s (105 m³/s) June 20, 1908, gage height, 6.1 ft (1.86 m); minimum recorded, 69 ft³/s (1.95 m³/s) Jan. 30, 1939, result of freezeup.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 1,250 ft³/s (35.4 m³/s) June 16; maximum gage height, 2.68 ft (0.817 m) Dec. 31 (backwater from ice); minimum daily discharge, 253 ft³/s (7.16 m³/s) Jan. 11-17, Feb. 5-10.

DISCHARGE, STREAM (CUBIC FEET PER SECOND), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	336	322	308	285	260	265	303	370	899	920	855	269
2	336	331	308	280	257	265	296	370	857	890	826	270
3	332	332	308	280	257	262	295	370	878	832	822	267
4	309	329	307	280	257	259	302	370	903	777	809	264
5	310	325	308	280	253	261	313	375	888	737	797	261
6	315	313	301	280	253	264	343	375	920	743	818	262
7	320	316	297	280	253	265	389	380	960	746	843	262
8	321	325	298	280	253	271	354	374	990	716	837	264
9	312	330	298	273	253	273	354	372	1000	722	820	265
10	290	307	298	266	253	274	331	390	980	752	786	268
11	337	294	298	253	254	271	321	410	970	788	747	284
12	338	294	293	253	256	274	316	425	1000	794	726	285
13	336	303	298	253	258	282	317	440	1100	794	717	297
14	323	302	297	253	259	283	316	450	1150	824	667	313
15	327	303	293	253	258	283	322	470	1200	860	580	312
16	333	309	296	253	258	289	338	500	1250	878	533	309
17	340	314	296	253	259	291	347	570	1200	932	503	315
18	341	316	293	256	260	291	357	615	1200	988	458	322
19	340	324	293	257	261	293	337	640	1200	1030	460	308
20	340	308	296	257	261	297	328	690	1150	1020	447	291
21	336	311	296	257	261	294	328	725	1120	1010	433	303
22	341	314	[illegible]	257	261	291	332	800	1090	1000	415	288
23	339	313	291	257	261	297	381	840	1070	1020	380	287
24	337	313	297	257	262	303	397	900	1050	1010	360	289
25	338	307	296	258	261	316	416	950	1030	1010	362	286
26	335	305	298	260	261	325	433	1000	1010	995	365	285
27	336	306	296	261	263	325	420	1020	1000	947	346	285
28	335	307	298	261	265	323	400	1030	1000	899	306	281
29	336	308	296	261	---	336	380	1030	980	878	288	280
30	326	305	296	258	---	326	370	1020	960	857	285	280
31	317	---	298	255	---	310	---	1000	---	883	268	---
TOTAL	10215	9390	9179	8167	7220	8959	10436	19276	31005	27252	17863	8552
MEAN	330	313	296	263	258	289	348	622	1034	879	576	285
MAX	341	332	308	285	265	336	433	1030	1250	1030	855	322
MIN	290	294	286	253	253	259	295	370	857	716	266	261
AC-FT	20260	18620	18210	16200	14320	17770	20700	38230	61500	54050	35430	16960

CAL YR 1978 TOTAL 175582 MEAN 481 MAX 1300 MIN 190 AC-FT 348300
WTR YR 1979 TOTAL 167520 MEAN 459 MAX 1250 MIN 253 AC-FT 332300

06018000 BEAVERHEAD RIVER NEAR DILLON, MT

LOCATION.--Lat 45°18'18", long 112°33'45", in NW¼NE¼NE¼ sec.22, T.6 S., R.8 W., Beaverhead County, Hydrologic Unit 10020002, on right bank just upstream from county road bridge on Anderson Lane, 7.0 mi (11.3 km) northeast of Dillon.

DRAINAGE AREA.--3,484 mi² (9,024 km²).

PERIOD OF RECORD.--October 1950 to September 1952, August 1963 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 4,960 ft (1,512 m), by barometer. Prior to August 1963, nonrecording gage on upstream side of bridge at same datum.

REMARKS.--Records good except those for winter periods, which are poor. Flow partly regulated by Lima Reservoir (see p. 605, 62) and Clark Canyon Reservoir (see p. 42) since August 1964. Diversions above station for irrigation of about 133,400 acres (540 km²) of which about 5,000 acres (20.2 km²) are irrigated by imported water from Birch and Willow Creeks and of which about 17,100 acres (69.2 km²) lies below station including about 600 acres (2.43 km²) in Ruby River drainage.

AVERAGE DISCHARGE.--18 years, 380 ft³/s (10.76 m³/s), 265,300 acre-ft/yr (399 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,570 ft³/s (44.5 m³/s) June 22, 1964, gage height, 5.52 ft (1.682 m); maximum gage height, 6.35 ft (1.935 m) Dec. 19, 1964 (backwater from ice); minimum discharge observed, 8.5 ft³/s (0.24 m³/s) June 21, 1952.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 617 ft³/s (17.5 m³/s) Apr. 24, 25, gage height, 3.97 ft (1.210 m); maximum gage height, 4.04 ft (1.231 m) Dec. 10 (backwater from ice); minimum daily discharge, 78 ft³/s (2.21 m³/s) Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	419	372	398	330	270	363	422	460	170	157	123	192
2	391	422	395	350	280	361	413	468	141	157	112	189
3	397	422	390	375	280	353	409	462	137	175	117	184
4	380	419	395	360	285	351	414	451	150	165	104	178
5	376	416	395	340	290	351	423	443	123	160	90	175
6	376	407	360	320	300	374	457	443	125	142	98	160
7	378	404	380	260	310	425	506	441	129	147	108	144
8	367	417	370	240	320	405	499	442	152	140	110	144
9	363	429	370	250	330	381	473	433	147	137	121	144
10	319	425	370	260	335	375	466	398	147	132	123	140
11	344	370	375	280	340	377	450	349	131	130	119	147
12	338	386	377	300	340	379	442	320	112	117	117	149
13	338	394	340	330	340	388	436	306	107	112	135	147
14	331	404	360	300	350	390	428	291	103	112	165	144
15	330	417	340	350	320	398	429	277	104	104	181	144
16	335	402	350	310	340	410	443	268	137	88	149	147
17	346	402	360	330	350	417	458	267	158	90	152	149
18	354	410	369	310	360	419	487	258	172	84	165	144
19	362	408	368	350	360	416	495	203	196	100	173	147
20	377	390	368	330	360	411	471	151	212	108	198	123
21	381	390	367	340	360	411	464	124	181	116	218	125
22	383	410	368	360	360	409	463	129	175	137	221	125
23	378	404	368	360	364	405	549	109	175	162	209	114
24	380	404	368	370	363	419	595	164	165	165	201	112
25	365	399	368	380	357	438	595	165	147	167	209	114
26	390	394	350	350	357	450	582	149	132	160	201	100
27	386	392	330	320	351	451	515	143	128	167	212	94
28	377	394	300	290	358	464	472	158	140	144	216	90
29	384	394	285	270	---	461	463	206	149	144	189	80
30	389	393	280	250	---	461	450	234	152	140	195	78
31	375	---	300	240	---	437	---	210	---	135	192	---
TOTAL	11429	12090	11114	9805	9330	12550	14169	8904	4397	4194	4925	4123
MEAN	369	403	359	316	333	405	472	287	147	135	159	137
MAX	419	429	398	380	364	464	595	468	212	175	221	192
MIN	319	370	280	240	270	351	409	109	103	84	90	78
AC-FT	22670	23980	22040	19450	18510	24890	28100	17660	8720	8320	9770	8180

CAL YR 1978 TOTAL 112646 MEAN 309 MAX 552 MIN 114 AC-FT 223400
WTR YR 1979 TOTAL 107030 MEAN 293 MAX 595 MIN 78 AC-FT 212300

06018500 BEAVERHEAD RIVER NEAR TWIN BRIDGES, MT

LOCATION.--Lat 45°23'01", long 112°27'07", in SW¼NW¼SE¼ sec.22, T.5 S., R.7 W., Madison County, Hydrologic Unit 10020002, on left bank at downstream side of bridge on State Highway 41, 11.5 mi (18.5 km) upstream from Ruby River, 12.7 mi (20.4 km) southwest of Twin Bridges, and 14.5 mi (23.3 km) northeast of Dillon.

DRAINAGE AREA.--3,619 mi² (9,373 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1935 to current year. Prior to October 1968, published as "at Blaine."

REVISED RECORDS.--WSP 1309: 1938(M), 1945(M). WSP 1559: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 4,809.15 ft (1,465.829 m), National Geodetic Vertical Datum of 1929. Prior to Feb. 17, 1949, nonrecording gage at bridge 0.5 mi (0.8 km) upstream at different datum. Feb. 17, 1949, to June 28, 1951, nonrecording gage at present site and datum.

REMARKS.--Water-discharge records good. Flow partly regulated by Lima Reservoir (see p. 605-612) and Clark Canyon Reservoir (see p. 42) since August 1964. Diversions above station for irrigation of about 135,400 acres (548 km²) of which about 5,000 acres (20.2 km²) are irrigated by imported water from Birch and Willow Creeks and if which about 9,200 acres (37.2 km²) lies below station including 600 acres (2.43 km²) in Ruby River drainage.

AVERAGE DISCHARGE.--44 years, 413 ft³/s (11.70 m³/s), 299,200 acre-ft/yr (369 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge observed, 3,130 ft³/s (88.6 m³/s) June 12, 1944, gage height, 6.76 ft (2.060 m), site and datum then in use; minimum observed, 7.0 ft³/s (0.20 m³/s) May 25, 1940.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 898 ft³/s (24.4 m³/s) Apr. 25, gage height, 5.53 ft (1,685 m); minimum daily, 76 ft³/s (2.15 m³/s) July 21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	561	479	516	250	339	456	537	625	222	167	145	282
2	572	520	502	270	396	451	525	631	162	160	127	283
3	512	545	472	280	396	439	519	619	167	181	128	272
4	485	544	540	280	391	439	522	599	166	181	129	250
5	481	529	523	289	414	448	546	572	132	226	120	249
6	465	517	475	240	431	473	587	569	141	215	117	216
7	480	514	442	255	449	653	645	561	143	212	134	218
8	490	526	446	251	463	653	658	544	160	210	147	215
9	477	540	439	269	455	547	616	531	168	215	169	216
10	415	469	482	303	475	515	611	503	170	199	177	225
11	407	449	509	329	485	512	589	452	172	185	193	234
12	389	450	492	349	480	527	579	411	136	165	184	225
13	387	450	446	360	506	529	575	403	126	156	237	241
14	398	460	465	363	506	525	562	383	108	153	295	246
15	408	472	475	376	439	541	560	381	113	139	344	258
16	417	502	439	394	431	561	570	339	125	134	309	255
17	444	509	469	398	466	566	593	348	151	103	272	234
18	493	512	462	395	459	575	633	334	170	100	299	203
19	510	459	485	406	464	562	683	276	219	98	289	207
20	499	475	478	402	458	548	647	157	234	84	310	192
21	488	499	475	400	457	545	617	125	207	76	336	187
22	513	516	489	430	456	537	606	113	218	94	346	186
23	525	512	485	422	443	537	756	93	212	133	323	175
24	512	512	492	420	440	560	852	118	208	147	305	167
25	507	499	485	444	444	579	880	148	179	165	307	167
26	512	502	460	460	450	584	825	123	173	166	296	167
27	503	499	450	439	449	561	748	111	154	181	302	173
28	488	502	400	443	457	574	663	104	131	198	315	165
29	493	502	350	436	---	585	643	179	128	175	294	147
30	502	506	240	386	---	590	617	262	136	180	284	148
31	486	---	260	349	---	561	---	259	---	167	285	---
TOTAL	14619	14970	14163	11090	12501	16753	18964	10693	4931	4969	7518	6403
MEAN	478	499	457	358	446	540	632	351	164	160	243	213
MAX	572	545	540	460	508	653	880	631	234	226	346	283
MIN	387	449	240	240	339	439	519	93	108	76	117	147
AC-FT	29390	29690	28090	22000	24800	33230	37620	21610	9780	9860	14910	12700

CAL YR 1978 TOTAL 143860 MEAN 394 MAX 670 MIN 122 AC-FT 285300
WTR YR 1979 TOTAL 137974 MEAN 378 MAX 880 MIN 76 AC-FT 273700

06018500 BEAVERHEAD RIVER NEAR TWIN BRIDGES, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1950-51, 1962 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: July 1962 to current year.
WATER TEMPERATURES: July 1962 to current year.

REMARKS.--Prior to October 1968, published as "at Blaine." Flow partly regulated by Lima and Clark Canyon Reservoirs. Many diversions for irrigation upstream from station.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 896 micromhos June 23, 1963; minimum daily, 433 micromhos May 23, 1969.
WATER TEMPERATURES: Maximum daily, 25.5°C July 27, 1973; minimum daily, 0.0°C on many days during winter periods most years.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 808 micromhos Aug. 15; minimum daily, 506 micromhos Feb. 22.
WATER TEMPERATURES: Maximum daily, 22.5°C Aug. 1; minimum daily, 0.0°C on many days during November to February.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)
OCT											
04...	1410	477	619	8.3	12.0	280	64	70	25	26	.7
NOV											
08...	1400	529	635	8.2	5.0	290	80	72	26	26	.7
DEC											
12...	1200	492	626	7.8	1.0	290	110	73	25	27	.7
JAN											
09...	1630	270	744	7.6	.0	330	66	81	30	32	.8
FEB											
07...	1320	448	642	7.9	1.0	270	56	67	24	24	.6
28...	1800	456	659	8.2	3.0	300	67	76	26	29	.7
MAR											
28...	1040	571	639	8.2	5.0	270	61	69	24	26	.7
MAY											
08...	1030	541	583	8.0	7.0	250	63	65	22	25	.7
30...	1330	283	703	8.0	10.0	310	89	76	29	35	.9
JUL											
02...	1230	143	763	8.3	15.0	300	53	72	30	35	.9
25...	1400	168	738	8.3	18.0	330	65	79	31	33	.8
AUG											
28...	1110	314	698	8.4	14.0	330	97	80	31	30	.7

DATE	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)
OCT											
04...	4.8	210	100	16	.6	17	389	.53	501	.27	.01
NOV											
08...	5.0	210	98	19	.4	21	396	.54	566	.38	.01
DEC											
12...	5.6	180	140	18	.5	21	421	.57	559	.59	.02
JAN											
09...	7.6	240	140	19	.4	26	484	.66	353	.75	.05
FEB											
07...	4.5	210	100	16	.4	21	386	.53	467	.55	.02
28...	5.2	210	140	16	.6	20	441	.60	543	.47	.05
MAR											
28...	5.2	210	110	18	.4	20	400	.54	617	.36	.02
MAY											
08...	5.1	190	91	13	.4	19	356	.48	520	.35	.01
30...	3.8	220	120	18	.1	22	438	.60	335	.31	.02
JUL											
02...	8.1	250	130	20	.5	24	470	.64	181	.64	.02
25...	9.0	240	130	20	.5	29	477	.65	216	.26	-
AUG											
28...	5.9	230	130	20	.5	25	462	.63	392	.29	.01

06018500 BEAVERHEAD RIVER NEAR TWIN BRIDGES, MT--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	630	618	666	---	703	646	632	631	729	754	751	650
2	612	616	634	754	655	660	631	639	725	720	762	684
3	620	607	647	735	661	644	654	627	765	726	768	721
4	656	610	634	697	655	647	640	606	770	773	790	660
5	662	631	634	737	658	652	636	603	767	748	797	702
6	659	632	644	755	680	654	639	605	760	751	798	676
7	678	639	668	756	660	668	618	624	775	773	781	705
8	660	632	634	765	655	638	632	608	760	760	799	711
9	659	636	630	752	654	663	622	609	757	749	794	720
10	673	639	647	712	639	664	613	607	758	757	752	721
11	659	639	642	699	658	661	649	619	755	762	751	722
12	660	608	628	695	641	647	636	638	791	762	772	670
13	620	629	618	681	660	646	638	630	776	767	768	709
14	702	633	616	668	662	653	617	610	606	765	796	721
15	672	632	641	695	658	654	640	644	780	771	808	730
16	661	628	650	679	662	642	647	615	716	769	771	682
17	661	624	625	686	664	650	622	677	779	739	758	680
18	700	625	642	672	588	662	613	683	790	769	757	680
19	682	636	634	681	658	660	656	642	714	737	732	681
20	688	639	640	688	660	659	669	682	718	739	733	710
21	689	623	644	681	654	652	665	746	724	745	675	710
22	660	633	647	676	506	653	666	731	722	741	662	718
23	660	624	635	674	658	655	654	710	701	784	692	728
24	628	628	642	668	652	652	728	712	711	789	690	708
25	662	625	640	682	660	668	727	731	713	740	659	733
26	659	638	640	670	659	638	723	734	711	781	687	730
27	630	637	642	714	659	643	651	736	701	787	675	742
28	631	630	652	707	654	663	673	732	711	790	666	744
29	651	628	622	758	---	652	636	731	703	793	661	745
30	650	632	694	699	---	638	604	710	759	790	654	741
31	651	---	---	695	---	633	---	733	---	738	658	---
MEAN	658	628	641	705	652	652	648	665	738	760	736	708

WTR YR 1979 MEAN 683 MAX 808 MIN 506

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12.0	7.5	1.0	---	.0	3.5	4.5	12.5	16.0	18.0	22.5	18.0
2	13.5	8.0	.5	.0	.0	2.0	5.0	11.0	15.0	19.0	21.0	16.5
3	11.5	6.5	.0	.0	1.5	.5	6.0	11.5	15.5	21.0	19.5	17.0
4	10.5	8.0	.0	.0	1.0	1.5	4.5	12.0	16.0	20.0	20.0	17.0
5	12.5	6.5	1.5	.0	1.0	2.0	6.5	10.5	15.5	21.0	19.5	17.5
6	10.0	6.0	1.0	.0	.0	4.0	7.0	10.0	15.0	20.5	18.0	17.0
7	10.5	5.5	.0	.0	.5	4.5	7.5	11.5	15.5	20.5	19.5	15.0
8	9.5	4.0	1.0	.0	1.0	4.0	6.5	11.0	13.0	20.0	18.5	16.5
9	11.0	3.0	1.5	.5	1.0	3.5	7.5	10.0	13.5	20.0	18.0	15.0
10	9.5	1.5	.0	.0	1.0	3.5	7.0	11.5	14.5	21.0	17.5	15.0
11	11.5	1.0	1.0	.5	1.0	4.0	8.5	12.0	15.0	20.0	17.5	15.0
12	10.0	.5	2.0	.5	1.5	5.0	9.0	11.5	18.0	21.0	21.0	14.0
13	11.0	.0	.5	.0	1.5	5.0	9.5	12.0	17.0	21.5	14.5	14.5
14	10.0	.0	1.0	.0	2.0	5.0	9.0	12.0	18.0	21.0	14.0	15.5
15	10.5	1.0	1.0	.0	.0	5.5	9.0	12.0	12.0	17.5	16.0	16.0
16	10.0	1.5	1.0	.0	.5	5.0	9.5	15.0	13.0	17.0	19.0	15.5
17	11.0	2.5	.0	.5	.5	5.0	10.0	14.0	17.0	21.5	20.0	17.0
18	10.0	1.0	.0	.0	1.0	4.0	7.5	16.0	16.5	19.0	20.0	16.5
19	10.5	.0	.5	.0	1.0	4.5	8.0	12.5	13.0	20.0	19.0	16.0
20	10.0	.0	.0	.5	1.0	4.0	10.0	14.0	16.0	21.0	20.0	14.0
21	10.0	.5	1.0	.5	.5	4.5	9.5	17.5	14.0	19.0	18.5	15.0
22	9.5	.5	2.0	.0	.0	4.5	10.0	15.0	15.5	21.5	19.0	15.5
23	8.5	.5	2.0	.0	1.5	5.0	10.5	16.0	19.0	19.5	18.0	16.0
24	8.0	.5	3.0	.0	1.0	5.0	11.0	14.5	20.0	21.5	17.0	16.0
25	8.5	.5	1.0	.0	1.5	5.5	10.0	16.0	14.0	22.0	17.5	15.0
26	6.5	.5	1.0	.0	1.0	4.5	12.0	18.5	19.5	20.0	16.5	15.0
27	7.5	1.5	1.0	.0	1.5	4.5	14.0	15.0	19.0	21.0	15.0	15.0
28	9.0	2.0	.0	.0	3.0	4.5	11.5	10.0	18.0	19.0	18.0	15.0
29	7.5	2.5	.5	.0	---	4.0	8.0	9.5	19.5	21.0	16.0	15.0
30	8.5	1.5	.0	.0	---	4.5	12.0	9.5	19.0	20.0	17.0	14.5
31	7.0	---	---	.0	---	3.5	---	13.0	---	19.5	14.0	---
MEAN	10.0	2.5	1.0	.0	1.0	4.0	8.5	13.0	16.0	20.0	18.0	15.5

WTR YR 1979 MEAN 9.5 MAX 22.5 MIN .0

06019500 RUBY RIVER ABOVE RESERVOIR, NEAR ALDER, MT

LOCATION.--Lat 45°10'31", long 112°08'52", in SW¼SW¼ sec.31, T.7 S., R.4 W., Madison County, Hydrologic Unit 10020003, on left bank at Puller Hot Springs 0.4 mi (0.6 km) upstream from Cottonwood Creek, 6 mi (10 km) upstream from Ruby Dam, and 10.5 mi (16.9 km) south of Alder.

DRAINAGE AREA.--538 mi² (1,393 km²).

PERIOD OF RECORD.--May 1938 to current year. Monthly discharge only for May 1938, published in WSP 1309.

REVISED RECORDS.--WSP 1309: 1938(M). WSP 1559: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 5,440.2 ft (1,658.17 m) National Geodetic Vertical Datum of 1929 (river-profile survey). Prior to Oct. 1, 1938, nonrecording gage at bridge 1,500 ft (457 m) downstream at datum 5.2 ft (1.58 m) lower. Oct. 1, 1938, to Aug. 5, 1955, water-stage recorder at site 500 ft (152 m) downstream at datum 0.5 ft (0.15 m) lower.

REMARKS.--Records excellent except those for winter period, which are poor. Diversions for irrigation of about 3,000 acres (12.1 km²) above station. Several observations of water temperature were made during the year and are available in files of Helena district office.

AVERAGE DISCHARGE.--41 years, 177 ft³/s (5.013 m³/s), 128,200 acre-ft/yr (158 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,670 ft³/s (47.3 m³/s) June 10, 1970, gage height, 5.62 ft (1.713 m); minimum daily, 35 ft³/s (0.99 m³/s) Jan. 23, 1962.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 969 ft³/s (27.4 m³/s) May 28, gage height 4.39 ft (1.338 m), only peak above base of 640 ft³/s (18.1 m³/s); minimum daily, 70 ft³/s (1.98 m³/s) Dec. 31.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	141	126	132	80	100	114	114	241	368	158	110	113
2	139	131	130	95	105	112	110	264	342	154	107	110
3	139	133	130	100	105	108	116	264	354	147	107	109
4	138	132	132	90	110	113	112	290	428	130	105	106
5	138	125	129	80	115	114	117	303	440	130	103	106
6	138	116	127	85	120	116	127	330	414	130	98	106
7	137	122	120	90	117	130	138	274	354	134	98	104
8	136	132	110	95	113	128	124	249	303	130	100	104
9	138	135	115	100	113	116	132	217	274	132	106	100
10	138	106	120	105	113	112	133	203	257	120	102	92
11	140	123	125	110	113	116	126	202	267	107	94	94
12	137	105	120	105	111	123	123	202	264	111	96	96
13	133	112	115	100	112	123	124	212	258	107	108	98
14	132	129	120	105	111	118	120	241	254	109	116	99
15	132	141	125	110	111	124	127	286	211	107	105	97
16	130	134	115	105	110	127	133	374	208	103	101	95
17	130	130	120	100	115	125	154	463	211	103	103	89
18	132	135	120	100	114	120	175	498	210	101	112	90
19	131	130	122	105	115	117	157	510	269	97	116	91
20	127	125	121	110	114	118	137	509	264	93	113	88
21	125	130	121	115	113	115	136	563	259	93	131	83
22	126	130	121	110	113	117	141	692	271	99	123	82
23	124	133	120	105	111	116	162	694	231	120	118	83
24	127	132	121	110	113	121	173	771	204	110	117	84
25	125	127	120	110	113	125	166	760	194	106	117	87
26	123	130	115	105	111	120	157	738	183	112	118	91
27	123	130	110	100	110	120	166	784	174	109	123	90
28	123	131	100	95	110	125	195	831	169	117	125	81
29	123	130	90	90	---	125	211	589	161	117	122	82
30	115	130	80	95	---	122	226	467	160	113	114	81
31	107	---	70	100	---	117	---	431	---	112	111	---
TOTAL	4047	3827	3616	3105	3131	3697	4332	13452	7956	3611	3419	2831
MEAN	131	128	117	100	112	119	144	434	265	116	110	94.4
MAX	141	141	132	115	120	130	226	831	440	158	131	113
MIN	107	105	70	80	100	108	110	202	160	93	94	81
AC-FT	8030	7590	7170	6160	6210	7330	8590	26680	15780	7160	6780	5620

CAL YR 1978 TOTAL 77165 MEAN 211 MAX 871 MIN 70 AC-FT 153100
WTR YR 1979 TOTAL 57024 MEAN 156 MAX 831 MIN 70 AC-FT 113100

06020600 RUBY RIVER BELOW RESERVOIR, NEAR ALDER, MT

LOCATION.--Lat 45°14'32", long 112°06'36", in SE¼NE¼ sec.8, T.7 S., R.4 W., Madison County, Hydrologic Unit 10020003, on right bank 0.2 mi (0.3 km) downstream from Ruby Dam and 5.7 mi (9.2 km) south of Alder.

DRAINAGE AREA.--596 mi^2 (1,544 km^2).

PERIOD OF RECORD.--November 1962 to current year.

GAGE.--Water-stage recorder. Datum of gage is 5,286.63 ft (1,611.365 m) National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corp of Engineers).

REMARKS.--Records good except those for period of no gage-height record, Nov. 29 to Jan. 2, which are fair. Flow regulated by Ruby River Reservoir (see 605, 612). Diversions for irrigation of about 3,500 acres (14.2 km^2) above station. Several observations of water temperatures were made during the year and are available in files of Helena district office.

AVERAGE DISCHARGE.--16 years (water years 1964-79), 221 ft^3/s (6.259 m^3/s), 160,100 acre-ft/yr (197 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,610 ft^3/s (45.6 m^3/s) June 10, 1970, gage height, 5.37 ft (1.637 m), minimum, 1.4 ft^3/s (0.04 m^3/s) Dec. 5, 1974, dam closure, result of discharge measurement; minimum daily, 19 ft^3/s (0.54 m^3/s) Feb. 15-19, 1967.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 910 ft^3/s (25.8 m^3/s) May 28, gage height, 3.70 ft (1.128 m); minimum daily, 40 ft^3/s (1.13 m^3/s) Jan. 6-13.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	177	82	55	44	45	45	145	101	535	442	340	252
2	165	81	55	44	45	45	121	101	522	366	335	240
3	165	81	55	44	45	45	105	101	548	321	335	240
4	165	81	54	43	45	45	103	101	376	321	335	244
5	165	81	54	41	46	45	103	114	490	321	331	244
6	165	81	54	40	46	45	103	174	515	316	340	248
7	165	81	53	40	46	45	103	174	515	298	360	252
8	165	81	53	40	46	45	103	174	515	285	355	281
9	165	81	52	40	46	45	103	236	515	285	442	276
10	165	81	52	40	46	44	103	264	509	289	490	276
11	165	81	52	40	45	57	103	268	509	289	484	272
12	165	81	51	40	45	67	103	276	509	294	448	268
13	165	81	51	40	45	67	103	276	509	326	391	260
14	165	81	51	41	45	65	103	276	509	326	360	200
15	165	81	50	41	45	65	103	276	509	331	350	264
16	168	81	50	41	46	65	103	276	503	331	321	252
17	168	81	50	41	46	65	103	200	503	350	326	248
18	168	81	49	42	46	63	103	256	503	360	365	232
19	168	81	49	42	45	63	105	350	478	360	365	232
20	168	81	49	42	45	84	105	413	459	391	360	221
21	168	81	48	42	45	101	105	391	459	402	355	217
22	168	65	46	42	45	101	105	381	453	402	350	207
23	171	53	48	43	45	116	103	459	453	402	345	183
24	171	53	47	43	45	145	101	503	453	397	340	162
25	171	54	47	43	45	145	101	503	448	397	335	139
26	171	54	46	43	45	142	101	611	448	386	331	121
27	171	54	46	44	45	142	101	755	430	376	316	112
28	171	54	46	44	45	145	101	858	453	365	260	81
29	171	56	45	44	---	145	101	805	448	360	260	79
30	171	56	45	44	---	145	101	611	448	345	260	84
31	165	---	45	44	---	145	---	562	---	340	260	---
TOTAL	5196	2201	1550	1302	1269	2582	3146	10846	14524	10794	10845	6387
MEAN	168	73.4	50.0	42.0	45.3	83.3	105	350	484	348	350	213
MAX	177	82	55	44	46	145	145	858	548	442	490	281
MIN	165	53	45	40	45	44	101	101	376	285	260	79
AC-FT	10310	4370	3070	2580	2520	5120	6240	21510	28810	21410	21510	12670

CAL YR 1978 TOTAL 83167 MEAN 228 MAX 892 MIN 45 AC-FT 165000
WTR YR 1979 TOTAL 70642 MEAN 194 MAX 858 MIN 40 AC-FT 140100

06024580 BIG HOLE RIVER NEAR WISE RIVER, MT

LOCATION.--Lat 45°51'04", long 113°04'06", in SW¼SE¼NE¼ sec.10, T.1 N., R.12 W., Silver Bow County, Hydrologic Unit 10020004, on left bank 5 ft (2 m) downstream from State Highway 43 bridge, 0.4 mi (0.6 km) upstream from Tie Creek, and 7 mi (11 km) northwest of Wise River.

DRAINAGE AREA.--1,611 mi^2 (2,582 km^2)

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: August to September 1979.

INSTRUMENTATION.--Temperature recorder since August 21, 1979.

EXTREMES FOR CURRENT YEAR.--Maximum 20.5°C Sept. 8.

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1							---	---	---	18.5	10.0	14.0
2							---	---	---	20.0	12.5	16.0
3							---	---	---	18.0	11.0	14.5
4							---	---	---	16.0	11.0	13.0
5							---	---	---	17.5	8.5	12.5
6							---	---	---	19.0	9.5	14.0
7							---	---	---	20.0	11.0	15.5
8							---	---	---	20.5	12.0	16.0
9							---	---	---	18.5	10.0	14.5
10							---	---	---	17.5	10.5	14.0
11							---	---	---	14.5	7.5	11.0
12							---	---	---	16.0	6.5	11.0
13							---	---	---	16.5	8.0	12.0
14							---	---	---	17.0	7.0	11.5
15							---	---	---	18.0	7.0	12.0
16							---	---	---	17.0	7.5	12.5
17							---	---	---	18.0	8.5	13.0
18							---	---	---	17.5	8.5	13.0
19							---	---	---	17.0	7.5	12.0
20							---	---	---	16.0	8.0	12.0
21							15.5	---	---	16.0	7.5	12.0
22							20.0	11.5	15.5	16.0	8.0	12.0
23							18.0	13.5	15.5	15.0	8.0	12.0
24							16.0	13.0	14.5	15.5	7.5	11.5
25							19.0	11.5	15.0	13.0	8.5	11.5
26							17.5	12.0	14.5	14.5	9.5	12.0
27							15.5	11.5	13.5	16.0	8.5	12.0
28							19.0	10.5	14.5	15.0	7.5	11.5
29							20.0	11.5	15.5	15.0	7.5	11.5
30							18.0	12.0	15.0	14.0	8.5	11.0
31							17.5	12.5	14.5	---	---	---
MONTH							20.0	10.5	15.0	20.5	6.5	12.5
YEAR	20.5	6.5	13.0									

06024590 WISE RIVER NEAR WISE RIVER, MT

LOCATION.--Lat 45°42'49", long 113°01'28", in NE¼ sec.36, T.1 S., R.12 W., Beaverhead County, Hydrologic Unit 10020004, on left bank 6 ft (2 m) downstream from bridge on old county road, 6.5 mi (10.5 km) southwest of Wise River.

DRAINAGE AREA.--214 mi² (544 km²).

PERIOD OF RECORD.--October 1972 to current year.

GAGE.--Water-stage recorder. Datum of gage is 6,112.52 ft (1,863.096 m) National Geodetic Vertical Datum of 1929 (from U.S. Forest Service bench mark).

REMARKS.--Records fair except those for winter period, which are poor. Minor diversions for irrigation above station. Several observations of water temperature were made during the year and are available in files of Helena district office.

AVERAGE DISCHARGE.--7 years, 187 ft³/s (5.296 m³/s), 135,500 acre-ft/yr (167 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,730 ft³/s (77.3 m³/s) June 16, 1974, gage height, 8.43 ft (2.569 m); minimum, 13 ft³/s (0.37 m³/s) Nov. 28, 1976, result of freezeup.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 14, 1927, when Wise River Reservoir dam failed, exceeded all other known floods at this location.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 350 ft³/s (9.91 m³/s) and maximums (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
May 27	0800	*1,840	52.1	*7.34	2.237	June 14	1000	1,050	29.7	5.73	1.747
June 6	0900	1,290	36.5	6.25	1.905						

Minimum discharge, 23 ft³/s (0.65 m³/s) Nov. 11, gage height, 2.45 ft (0.747 m), result of freezeup.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	129	76	70	42	42	50	38	199	721	320	86	73
2	128	81	66	46	44	45	38	208	691	293	83	70
3	120	87	66	48	46	40	40	217	753	273	80	67
4	117	89	70	46	48	38	45	240	938	257	77	65
5	114	78	65	42	50	40	50	272	1140	241	75	63
6	111	68	60	38	50	42	62	276	1200	228	74	62
7	109	75	50	42	50	44	69	255	929	216	73	59
8	107	82	45	46	46	44	66	246	758	208	71	56
9	105	88	50	52	50	42	73	227	662	196	71	54
10	102	62	60	56	52	42	70	219	681	186	73	53
11	100	28	65	58	54	44	64	216	758	175	71	53
12	98	32	60	56	56	46	66	227	828	165	74	52
13	94	36	55	54	58	48	68	239	952	160	88	52
14	93	40	60	52	56	50	68	286	981	150	88	51
15	95	45	65	54	54	52	77	335	797	141	92	49
16	95	50	60	54	52	54	87	499	692	138	86	48
17	95	60	55	56	54	52	100	666	639	129	81	47
18	95	70	56	58	56	50	101	716	741	121	79	47
19	92	65	58	60	58	48	91	736	814	117	83	45
20	92	60	58	62	56	46	83	752	659	110	92	45
21	94	65	60	64	56	44	85	870	606	107	96	45
22	90	70	60	62	54	46	94	1050	602	112	96	44
23	86	72	60	60	52	48	106	1210	520	123	89	44
24	89	70	60	58	54	48	106	1450	481	110	83	44
25	84	68	60	56	56	50	107	1480	456	103	87	44
26	80	68	55	54	56	48	109	1530	437	97	84	45
27	80	70	50	52	56	46	127	1730	421	97	78	46
28	84	70	45	50	54	44	158	1610	399	96	77	45
29	83	72	40	45	---	42	171	1250	365	97	75	43
30	73	72	35	40	---	40	183	989	347	93	72	43
31	63	---	38	40	---	40	---	828	---	88	70	---
TOTAL	2997	1969	1759	1603	1472	1413	2602	21028	20968	4949	2504	1554
MEAN	96.7	65.6	56.7	51.7	52.6	45.6	86.7	678	699	160	80.8	51.8
MAX	129	89	70	64	58	54	183	1730	1200	320	96	73
MIN	63	28	35	38	42	38	38	199	347	88	70	43
AC-FT	5940	3910	3490	3180	2920	2800	5160	41710	41590	9820	4970	3080

CAL YR 1978 TOTAL 82920 MEAN 227 MAX 1790 MIN 28 AC-FT 164500
WTR YR 1979 TOTAL 64618 MEAN 178 MAX 1730 MIN 28 AC-FT 128600

06025500 BIG HOLE RIVER NEAR MELROSE, MT

LOCATION.--Lat 45°31'36", long 112°42'03", in SE¼SE¼SW¼ sec.34, T.3 S., R.9 W., Madison County, Hydrologic Unit 10020004, on left bank at downstream side of bridge on Interstate Highway 15 and U.S. Highway 91, 0.1 mi (0.2 km) downstream from Rock Creek, and 7 mi (11 km) south of Melrose.

DRAINAGE AREA.--2,476 mi^2 (6,413 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1923 to current year. Monthly discharge only for some periods, published in WSP 1309.

GAGE.--Water-stage recorder. Datum of gage is 5,032.87 ft (1,534.018 m) National Geodetic Vertical Datum of 1929. Prior to June 14, 1927, water-stage recorder, and July 17, 1927, to Sept. 30, 1931, nonrecording gage, at site 1.7 mi (2.7 km) upstream at different datum.

REMARKS.--Water-discharge records good except those for winter period, which are fair. Diversions for irrigation of about 136,000 acres (550 km^2) above station.

AVERAGE DISCHARGE.--56 years, 1,160 ft^3/s (32.85 m^3/s), 840,400 acre-ft/yr (1.04 km^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 23,000 ft^3/s (651 m^3/s) June 14, 1927, when Wise River Reservoir dam failed (gage height, 14.0 ft or 4.27 m, from floodmark, site and datum then in use), from rating curve extended above 8,000 ft^3/s (227 m^3/s); maximum discharge unaffected by dam failure, 14,300 ft^3/s (405 m^3/s) June 10, 1972, gage height, 8.04 ft (2.451 m); minimum observed, 49 ft^3/s (1.39 m^3/s) Aug. 17, 1931, gage height, 0.70 ft (0.213 m), site and datum then in use.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 3,400 ft^3/s (96.3 m^3/s) and maximums (*)

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
May 2	0800	3,830	108	4.12	1.256	June 6	1345	3,890	110	4.15	1.265
May 27	1530	7,550	214	5.76	1.756						

Minimum discharge, 151 ft^3/s (4.28 m^3/s) Nov. 11, gage height, 0.82 ft (0.250 m), result of freezeup.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	798	503	455	430	360	370	518	3590	4020	1370	464	411
2	782	541	440	440	345	350	492	3630	3450	1300	417	405
3	763	588	455	460	330	360	494	3540	3240	1210	390	389
4	775	606	470	360	400	405	503	3300	3320	1070	358	370
5	759	616	455	260	500	430	503	3330	3550	986	331	352
6	745	560	420	280	520	500	558	3280	3780	924	317	318
7	726	543	400	320	540	510	679	3010	3490	887	286	298
8	723	561	390	360	460	515	716	2630	3160	841	262	298
9	719	603	425	420	540	540	822	2290	2840	796	256	285
10	704	462	440	500	560	560	843	2030	2600	740	267	277
11	688	196	485	440	560	580	783	1850	2510	697	261	269
12	669	210	480	390	550	620	766	1790	2530	643	260	264
13	653	346	445	360	540	622	771	1800	2650	615	275	260
14	644	458	460	340	525	550	744	2040	2770	588	317	253
15	640	486	520	430	500	502	810	2330	2560	556	375	259
16	639	518	500	400	540	507	920	2840	2330	535	390	267
17	657	535	510	390	560	516	1230	3310	2220	515	381	263
18	658	521	520	490	550	510	1680	3650	2390	498	367	251
19	640	425	520	460	530	497	1660	3790	3080	472	357	245
20	634	418	510	480	500	476	1310	3810	3050	457	365	241
21	657	445	500	470	540	463	1150	3980	2660	441	386	241
22	642	445	510	450	500	483	1190	4300	2560	450	413	237
23	622	480	485	435	440	462	1490	4830	2450	515	428	237
24	628	460	495	430	420	478	1670	5560	2220	543	433	233
25	622	460	470	415	440	516	1680	6270	2010	533	456	233
26	615	465	455	400	420	510	1750	6650	1860	494	454	233
27	600	445	500	400	405	518	2000	7230	1740	480	456	237
28	598	470	500	400	395	523	2750	7090	1660	478	455	237
29	608	445	350	300	---	558	3330	6430	1490	502	434	245
30	595	465	365	300	---	544	3420	5630	1410	502	411	257
31	546	---	380	300	---	524	---	4820	---	488	398	---
TOTAL	20749	14278	14310	12310	13470	15499	37232	120630	79600	21126	11420	8365
MEAN	669	476	462	397	481	500	1241	3891	2653	681	368	279
MAX	798	616	520	500	560	622	3420	7230	4020	1370	464	411
MIN	546	196	350	260	330	350	492	1790	1410	441	256	233
AC-FT	41160	28320	28380	24420	26720	30740	73850	239300	157900	41900	22650	16590

CAL YR 1978 TOTAL 547281 MEAN 1499 MAX 7240 MIN 196 AC-FT 1086000
WTR YR 1979 TOTAL 368989 MEAN 1011 MAX 7230 MIN 196 AC-FT 731900

06025500 BIG HOLE RIVER NEAR MELROSE, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: June 1977 to current year.

INSTRUMENTATION.--Temperature recorder since June 22, 1977.

EXTREMES FOR PERIOD OF RECORD.--
WATER TEMPERATURES: Maximum, 22.0°C several days during July and August 1977 and 1979; minimum, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum recorded, 22.0°C on several days during July to August; minimum, 0.0°C on many days during November to March.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	---	---	---	3.5	.0	2.0	.0	.0	.0	.0	.0	.0
2	11.0	---	---	4.0	1.0	2.5	.0	.0	.0	.0	.0	.0
3	9.5	6.0	8.0	5.0	2.0	4.0	.0	.0	.0	.0	.0	.0
4	10.5	6.5	8.5	6.0	3.5	4.5	.0	.0	.0	.0	.0	.0
5	10.5	6.5	8.5	3.5	1.5	2.5	.0	.0	.0	.0	.0	.0
6	10.5	6.0	8.0	3.0	.5	1.5	.0	.0	.0	.0	.0	.0
7	10.5	6.5	8.5	3.5	1.0	2.5	.0	.0	.0	.0	.0	.0
8	12.0	7.5	9.5	5.0	2.0	4.0	.0	.0	.0	.0	.0	.0
9	11.5	7.5	9.0	4.0	.0	1.5	.0	.0	.0	.0	.0	.0
10	10.5	7.0	9.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11	11.0	8.0	9.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
12	9.5	6.5	8.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13	8.0	4.5	6.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
14	8.5	4.0	6.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
15	9.0	5.0	7.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
16	8.5	5.5	7.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
17	9.5	7.0	8.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
18	10.0	6.5	8.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
19	9.0	5.5	7.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
20	8.0	5.5	7.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
21	9.0	6.0	7.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
22	7.0	4.0	5.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
23	7.0	3.0	5.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
24	7.5	5.0	6.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
25	5.5	3.0	4.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
26	6.0	2.0	4.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
27	5.0	2.0	3.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
28	6.0	3.0	4.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
29	5.0	2.5	4.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
30	4.0	1.0	2.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
31	3.0	.0	1.5	---	---	---	.0	.0	.0	.0	.0	.0
MONTH	12.0	.0	6.5	6.0	.0	1.0	.0	.0	.0	.0	.0	.0

06025500 BIG HOLE RIVER NEAR MELROSE, MT--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	.0	.0	.0	.0	.0	.0	4.5	.5	2.5	---	---	---
2	.0	.0	.0	.0	.0	.0	3.5	.5	2.0	---	---	---
3	.0	.0	.0	.0	.0	.0	3.5	.5	2.0	---	---	---
4	.0	.0	.0	.0	.0	.0	---	1.5	---	---	---	---
5	.0	.0	.0	.0	.0	.0	---	---	---	---	---	---
6	.0	.0	.0	.0	.0	.0	---	---	---	---	---	---
7	.0	.0	.0	.0	.0	.0	---	---	---	8.5	---	---
8	.0	.0	.0	.0	.0	.0	---	---	---	7.5	5.5	6.5
9	.0	.0	.0	.0	.0	.0	---	---	---	---	4.0	---
10	.0	.0	.0	.0	.0	.0	---	---	---	---	---	---
11	.0	.0	.0	.0	.0	.0	---	---	---	---	---	---
12	.0	.0	.0	.0	.0	.0	---	---	---	---	---	---
13	.0	.0	.0	.0	.0	.0	---	---	---	---	---	---
14	.0	.0	.0	.0	.0	.0	---	---	---	---	---	---
15	.0	.0	.0	.0	.0	.0	---	---	---	---	---	---
16	.0	.0	.0	.0	.0	.0	---	---	---	11.5	---	---
17	.0	.0	.0	---	---	---	---	---	---	11.5	9.0	10.0
18	.0	.0	.0	---	---	---	---	---	---	12.0	9.0	10.5
19	.0	.0	.0	---	---	---	---	---	---	12.5	9.5	11.0
20	.0	.0	.0	5.5	---	---	---	---	---	13.0	9.5	11.5
21	.0	.0	.0	6.5	1.5	3.5	---	---	---	13.5	10.5	12.5
22	.0	.0	.0	6.0	2.0	4.0	---	---	---	13.5	11.0	12.5
23	.0	.0	.0	6.0	1.5	4.0	---	---	---	14.0	11.5	12.5
24	.0	.0	.0	7.5	2.0	4.5	---	---	---	13.0	11.0	12.0
25	.0	.0	.0	4.5	2.5	3.5	---	---	---	12.5	10.0	11.5
26	.0	.0	.0	4.5	1.0	3.0	---	---	---	14.0	11.5	13.0
27	.0	.0	.0	3.5	2.0	2.5	---	---	---	14.0	11.5	13.0
28	.0	.0	.0	5.5	1.0	3.5	---	---	---	11.5	9.0	10.5
29	---	---	---	6.5	2.5	4.5	---	---	---	8.5	7.5	8.0
30	---	---	---	5.0	2.0	3.5	---	---	---	8.5	6.0	7.5
31	---	---	---	3.5	1.0	2.0				10.5	7.0	8.5
MONTH	.0	.0	.0	7.5	.0	1.5	4.5	.5	2.0	14.0	4.0	10.5

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	11.0	8.5	10.0	---	---	---	22.0	15.5	18.5	17.5	12.0	14.5
2	12.0	9.5	11.0	---	---	---	22.0	15.0	18.5	18.0	14.5	16.0
3	14.0	10.0	12.0	18.0	---	---	21.5	14.5	18.0	17.5	13.0	15.5
4	14.0	11.5	13.0	17.0	12.5	14.5	21.5	15.0	18.0	15.5	13.0	14.5
5	13.5	12.0	12.5	17.5	12.5	15.0	21.0	15.5	18.5	17.0	11.5	14.0
6	11.5	9.0	10.5	17.5	13.0	15.0	21.5	15.0	18.0	18.5	12.5	15.5
7	11.0	8.0	9.0	18.0	12.5	15.5	21.0	15.0	18.0	19.0	13.5	16.5
8	10.5	7.5	9.0	18.5	13.5	16.0	18.5	16.5	17.5	18.5	14.0	16.5
9	12.5	8.5	10.5	18.5	13.5	16.0	20.0	14.0	17.0	19.0	13.5	16.0
10	14.0	11.0	12.5	20.0	13.5	16.5	20.5	15.0	17.5	17.0	12.5	15.0
11	15.0	12.0	13.5	18.5	13.5	16.0	19.0	15.0	17.0	15.5	11.0	13.5
12	16.0	12.5	14.0	18.0	13.5	16.0	17.0	14.5	15.5	16.0	10.5	13.0
13	---	13.0	---	19.5	13.0	16.0	14.5	14.0	14.0	16.5	11.5	13.5
14	---	---	---	20.0	13.5	16.5	18.5	13.0	15.5	16.5	10.5	13.5
15	---	---	---	19.5	13.5	16.5	19.0	13.5	16.0	17.5	11.0	14.0
16	---	---	---	21.0	14.0	17.5	18.0	14.5	16.0	17.5	12.0	14.5
17	---	---	---	22.0	15.0	18.5	19.5	15.0	17.0	18.0	12.5	15.0
18	---	---	---	22.0	15.0	18.5	19.0	14.5	17.0	17.5	12.0	15.0
19	---	---	---	20.5	16.0	18.5	18.5	15.0	16.5	17.5	12.0	14.5
20	---	---	---	21.0	15.5	18.5	16.5	14.5	15.5	16.5	12.0	14.5
21	---	---	---	22.0	15.5	19.0	17.5	13.5	15.5	17.0	11.5	14.5
22	---	---	---	---	17.5	---	17.5	13.0	15.0	16.5	12.0	14.5
23	---	---	---	---	---	---	18.5	14.0	16.5	16.0	12.0	14.0
24	---	---	---	---	---	---	17.0	14.5	15.5	16.5	11.5	14.0
25	---	---	---	---	---	---	17.5	12.5	15.0	15.0	11.5	13.5
26	---	---	---	---	---	---	17.5	14.0	15.5	15.5	12.0	13.5
27	---	---	---	19.0	---	---	15.5	13.0	14.5	15.5	11.0	13.5
28	---	---	---	17.0	14.5	16.0	18.0	12.0	15.0	15.5	11.0	13.5
29	---	---	---	20.0	12.5	16.0	19.5	13.0	16.0	16.0	11.0	13.5
30	---	---	---	20.5	15.0	17.5	18.0	14.0	16.0	15.0	12.0	13.5
31	---	---	---	22.0	14.0	18.0	15.5	13.5	14.0	---	---	---
MONTH	16.0	7.5	11.5	22.0	12.5	16.5	22.0	12.0	16.5	19.0	10.5	14.5
YEAR	22.0	.0	6.5									

06035000 WILLOW CREEK NEAR HARRISON, MT

LOCATION.--Lat 45°43'21", long 111°44'17", in SW¼NW¼ sec.28, T.1 S., R.1 W., Madison County, Hydrologic Unit 10020005, on right bank 2.2 mi (3.5 km) upstream from Willow Creek Dam, 2.5 mi (4.0 km) northeast of Harrison, and 11 mi (18 km) upstream from mouth.

DRAINAGE AREA.--83.8 mi^2 (217.0 km^2).

PERIOD OF RECORD.--April 1938 to current year. Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WSP 1559: Drainage area.

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 4,750 ft (1,448 m), from topographic map. Prior to Oct. 8, 1946, water-stage recorder at datum 0.22 ft (0.067 m) higher, with different concrete control.

REMARKS.--Records good except those for winter period, which are poor. Diversions for irrigation of about 12,500 acres (50.6 km^2) of which 3,500 acres (14.2 km^2) is in Norwegian Creek drainage.

AVERAGE DISCHARGE.--41 years, 39.8 ft^3/s (1.127 m^3/s), 28,840 acre-ft/yr (35.6 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 813 ft^3/s (23.0 m^3/s) Feb. 3, 1963, gage height, 4.24 ft (1.292 m), from floodmarks, from rating curve extended above 300 ft^3/s (8.50 m^3/s); minimum, 1.4 ft^3/s (0.040 m^3/s) Sept. 17, 1956, gage height, 0.39 ft (0.119 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 158 ft^3/s (4.47 m^3/s) June 19, gage height, 1.83 ft (0.558 m); maximum gage height, 1.94 ft (0.591 m) Dec. 11 (backwater from ice); minimum discharge, 3.6 ft^3/s (0.10 m^3/s) July 27, gage height, 0.37 ft (0.113 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	41	28	33	17	24	32	32	54	47	37	5.9	9.1
2	40	27	29	20	25	29	31	56	32	34	4.8	8.7
3	38	27	26	19	25	25	33	53	24	33	5.0	8.1
4	38	26	29	16	27	27	32	55	22	39	6.3	8.1
5	39	25	28	12	29	29	36	61	27	33	6.3	8.4
6	39	24	26	13	29	32	43	61	27	25	5.3	8.4
7	40	25	23	12	31	36	51	56	27	23	5.2	8.2
8	39	25	20	15	26	41	42	56	23	18	4.9	7.8
9	39	25	22	18	30	42	43	60	18	16	5.0	6.9
10	36	15	24	24	33	41	42	59	15	12	5.1	7.4
11	35	16	25	27	36	45	39	55	16	10	4.4	7.4
12	30	19	25	26	39	49	37	50	17	11	4.8	7.8
13	27	17	27	24	41	44	36	49	28	10	6.4	7.6
14	26	15	29	26	35	39	36	51	38	8.6	8.5	7.3
15	26	18	30	30	30	41	37	53	29	6.9	8.2	6.7
16	26	20	32	29	27	45	38	63	26	5.6	7.4	6.7
17	27	22	34	28	31	43	42	72	28	5.8	7.0	6.3
18	29	21	36	29	35	39	47	73	40	5.2	6.6	6.6
19	30	19	34	30	37	38	50	76	134	4.4	7.0	6.8
20	29	19	31	32	34	37	46	76	83	4.2	7.4	7.1
21	29	20	33	34	36	37	42	74	67	4.3	8.7	7.2
22	30	22	35	33	32	37	40	80	56	5.2	9.7	7.0
23	26	25	34	33	27	35	67	86	49	8.5	8.5	7.2
24	27	28	36	35	30	41	59	110	43	6.6	8.6	7.1
25	26	24	34	34	34	46	51	112	44	6.4	11	7.5
26	29	26	33	32	39	39	46	92	47	4.5	11	7.1
27	28	28	32	31	37	35	43	88	49	4.2	11	7.1
28	27	30	22	30	35	38	46	110	51	5.3	11	6.8
29	26	33	12	26	---	38	46	130	47	6.7	10	6.0
30	25	35	13	20	---	36	51	90	41	7.5	9.2	6.0
31	26	---	14	23	---	34	---	63	---	6.8	9.0	---
TOTAL	979	704	861	778	896	1170	1284	2224	1195	407.8	229.2	220.4
MEAN	31.6	23.5	27.8	25.1	32.0	37.7	42.8	71.7	39.8	13.2	7.39	7.35
MAX	41	35	36	35	41	49	67	130	134	39	11	9.1
MIN	25	15	12	12	24	25	31	49	15	4.2	4.4	6.0
AC-FT	1940	1400	1710	1540	1780	2320	2550	4410	2370	809	455	437

CAL YR 1978 TOTAL 12919.1 MEAN 35.4 MAX 175 MIN 8.2 AC-FT 25630
WTR YR 1979 TOTAL 10948.4 MEAN 30.0 MAX 134 MIN 4.2 AC-FT 21720

06036650 JEFFERSON RIVER NEAR THREE FORKS, MT

LOCATION.--Lat 45°53'52", long 111°35'45", in SW¼SW¼NW¼ sec.27, T.2 N., R.1 E., Broadwater County, Hydrologic Unit 10020005, on left bank 50 ft (15 m) downstream from bridge on U.S. Highway 10, 2.5 mi (4.0 km) northwest of Three Forks.

DRAINAGE AREA.--9,532 mi² (24,688 km²).

PERIOD OF RECORD.--October 1978 to September 1979.

GAGE.--Water-stage recorder. Altitude of gage is 4,160 ft (1,268 m), from topographic map.

REMARKS.--Records good except those for winter period, which are poor. Some regulation by Ruby River Reservoir (see p. 605, 612) and Clark Canyon Reservoir (see p. 42). Diversions for irrigation of about 390,000 acres (1,580 km²) above station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,430 ft³/s (239 m³/s) May 29, 1979, gage height, 6.40 ft (1.951 m); minimum, 402 ft³/s (11.4 m³/s) Aug. 11-13, 1979, gage height, 1.72 ft (0.524 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 8,430 ft³/s (239 m³/s) May 29, gage height, 6.40 ft (1.951 m); minimum, 402 ft³/s (11.4 m³/s) Aug. 11-13, gage height, 1.72 ft (0.524 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2310	1900	1500	550	1100	1600	1700	4900	6080	1950	662	1130
2	2270	1870	1400	600	1000	1600	1730	5120	5170	1930	648	1140
3	2240	1910	1300	700	1100	1500	1710	5170	4470	1870	597	1130
4	2220	1950	1300	760	1200	1500	1670	5080	4140	1820	556	1090
5	2190	1950	1400	750	1200	1500	1670	4910	4130	1710	516	1060
6	2170	1960	1300	650	1300	1700	1720	4940	4270	1680	507	1040
7	2140	1910	1100	550	1200	2000	1860	4900	4450	1620	492	1020
8	2120	1850	850	600	1200	2100	1980	4600	4150	1520	491	965
9	2100	1880	700	700	1300	2100	2050	4230	3770	1360	457	894
10	2080	1800	800	850	1300	2000	2100	3860	3440	1260	418	852
11	2020	1400	1000	1000	1400	1900	2130	3590	3200	1170	404	804
12	1950	1200	1200	1100	1500	1900	2040	3330	3080	1070	404	794
13	1930	1300	1400	1100	1600	2000	2030	3200	3020	929	421	796
14	1930	1400	1300	1000	1700	1900	2020	3110	3000	842	497	797
15	1950	1400	1300	1000	1500	1850	2000	3310	3060	758	691	798
16	1910	1450	1200	1100	1300	1880	2040	3630	2890	711	875	805
17	1920	1500	1200	1100	1400	1970	2120	4110	2690	664	959	799
18	1930	1300	1300	1200	1400	2010	2430	4620	2670	603	895	709
19	1960	1000	1300	1300	1500	1970	2970	4950	3320	559	870	725
20	1980	850	1300	1400	1500	1910	3090	4980	4010	568	925	672
21	1980	800	1400	1400	1400	1850	2770	4870	3900	551	953	619
22	1950	900	1400	1500	1400	1860	2560	4880	3610	503	972	567
23	1960	1200	1300	1400	1500	1840	2690	5150	3490	504	1000	591
24	1970	1400	1300	1400	1400	1840	3260	5610	3540	533	1030	577
25	1960	1500	1400	1300	1300	1890	3500	6250	3090	573	1050	571
26	1970	1500	1300	1400	1400	1900	3490	7040	2830	581	1000	548
27	1970	1500	1200	1400	1500	1880	3440	7430	2590	596	1100	543
28	1980	1600	1100	1400	1600	1860	3560	7910	2380	580	1170	549
29	1970	1600	800	1300	---	1850	4060	8320	2210	632	1200	555
30	1940	1500	550	1200	---	1870	4670	7970	2040	662	1190	567
31	1930	---	500	1100	---	1840	---	7040	---	664	1130	---
TOTAL	62900	45270	36400	32810	38200	57370	75080	159010	104570	30973	24140	23707
MEAN	2029	1509	1174	1058	1364	1851	2503	5129	3486	999	779	790
MAX	2310	1960	1500	1500	1700	2100	4670	8320	6080	1950	1200	1140
MIN	1910	800	500	550	1000	1500	1670	3110	2040	503	404	543
AC-FT	124800	89770	72200	65080	75770	113800	148900	315400	207400	61430	47900	47020

WTR YR 1979 TOTAL 690508 MEAN 1892 MAX 8320 MIN 404 AC-FT 1370000

06038500 MADISON RIVER BELOW HEBGEN LAKE, NEAR GRAYLING, MT

LOCATION.--Lat 44°52'00", long 111°20'15", near northeast corner of sec.22, T.11 S., R.3 E., Gallatin County, Hydrologic Unit 10020007, Gallatin National Forest, on right bank 1,500 ft (457 m) downstream from Hebgen Dam, 8 mi (13 km) northwest of Grayling, 17 mi (27 km) upstream for West Fork, and at mile 103 (166 km).

DRAINAGE AREA.--905 mi² (2,344 km²).

PERIOD OF RECORD.--June 1909 to current year. Prior to October 1938 adjusted runoff only, published in WSP 1309. Prior to October 1949, published as "below Hebgen Reservoir".

REVISED RECORDS.--WSP 1509: 1948. WSP 1559: Drainage area. WSP 1629: 1943. WSP 1709: 1959. WSP 1729: 1943.

GAGE.--Water-stage recorder. Datum of gage is 6,448.47 ft (1,965.494 m) National Geodetic Vertical Datum of 1929 (after 1959 earthquake). Prior to July 13, 1943, nonrecording gage in stilling well.

REMARKS.--Records excellent. Flow completely regulated by Hebgen Lake (see p. 605,612). Several observations of water temperature were made during the year and are available in files of Helena district office. Diversions for irrigation of about 1,100 acres (4.45 km²) above station.

AVERAGE DISCHARGE.--70 years, 996 ft³/s (28.21 m³/s), 14.95 in/yr (380 mm/yr), 721,600 acre-ft/yr (890 hm³/yr), adjusted for storage.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,200 ft³/s (289 m³/s) Aug. 17, 1959, caused by wave over Hebgen Dam during earthquake (gage height, 5.3 ft or 1.62 m, from floodmark), from rating curve extended above 3,500 ft³/s (99.1 m³/s) on basis of slope-area measurement of peak flow; maximum observed unaffected by wave over dam, 5,980 ft³/s (169 m³/s) June 3, 1943, gage height, 3.69 ft (1.125 m); minimum daily, 5.0 ft³/s (0.14 m³/s) May 9-12, 1960.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,710 ft³/s (48.8 m³/s) Oct. 9, gage height, 2.27 ft (0.692 m); minimum daily, 105 ft³/s (2.97 m³/s) June 9-11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1250	1600	1620	762	762	762	1450	1390	404	191	888	708
2	1250	1600	1350	762	762	762	1440	1030	404	191	888	709
3	1250	1600	858	762	762	762	1460	699	404	298	888	708
4	1250	1600	858	762	762	762	1500	699	409	360	887	719
5	1250	1600	858	762	762	762	1500	700	410	429	887	760
6	1250	1610	858	762	762	762	1490	706	345	464	887	799
7	1250	1620	858	762	762	762	1490	707	189	464	912	799
8	1250	1620	850	762	762	762	1460	708	134	479	973	799
9	1380	1610	848	762	762	762	1460	706	105	582	972	799
10	1620	1610	848	762	762	762	1480	709	105	582	971	799
11	1620	1600	848	762	762	775	1470	711	105	582	972	799
12	1610	1590	820	762	762	800	1470	714	120	533	972	798
13	1610	1590	762	762	762	800	1460	716	185	470	920	797
14	1600	1590	762	762	762	800	1460	716	109	418	811	796
15	1590	1590	762	762	762	800	1470	717	110	404	811	795
16	1590	1590	762	762	762	800	1490	717	110	489	786	795
17	1590	1590	762	762	762	800	1490	719	110	599	717	794
18	1580	1580	762	762	762	800	1480	724	110	635	713	794
19	1600	1580	762	762	762	800	1460	726	110	722	709	792
20	1600	1580	762	762	762	983	1480	732	110	719	708	837
21	1600	1580	762	762	762	1440	1480	735	151	719	708	927
22	1600	1570	762	762	762	1460	1460	650	227	720	709	925
23	1600	1570	762	762	762	1480	1500	601	272	692	709	924
24	1600	1560	762	762	762	1480	1500	549	362	761	709	922
25	1600	1610	762	762	762	1470	1490	401	361	761	710	922
26	1600	1640	762	762	762	1470	1490	404	363	761	709	920
27	1600	1630	762	762	762	1470	1480	407	365	761	709	920
28	1600	1630	762	762	762	1460	1460	410	366	761	709	919
29	1600	1620	762	762	---	1460	1480	412	257	760	709	919
30	1600	1620	762	762	---	1460	1480	417	191	761	710	918
31	1600	---	762	762	---	1450	---	413	---	797	709	---
TOTAL	46590	47980	25952	23622	21336	31896	44380	20647	7003	17865	25072	24812
MEAN	1503	1599	837	762	762	1029	1479	666	233	576	809	627
MAX	1620	1640	1620	762	762	1480	1500	1390	410	797	973	927
MIN	1250	1560	762	762	762	762	1440	401	105	191	708	708
AC-FT	92410	95170	51480	46850	42320	63270	88030	40950	13890	35440	49730	49210

CAL YR 1978 TOTAL 376150 MEAN 1025 MAX 2020 MIN 61 AC-FT 742100
WTR YR 1979 TOTAL 337157 MEAN 924 MAX 1640 MIN 105 AC-FT 668800

06038800 MADISON RIVER AT KIRBY RANCH, NEAR CAMERON, MT

LOCATION.--Lat 44°53'22", long 111°34'46", in NE¼SE¼ sec.10, T.11 S., R.1 E., Madison County, Hydrologic Unit 10020007, on upstream side of county bridge 0.2 mi (0.3 km) upstream from West Fork Madison River, and 22 mi (35 km) south of Cameron.

DRAINAGE AREA.--1,065 mi^2 (2,758 km^2).

PERIOD OF RECORD.--September 1959 to September 1963, May 1978 to current season (seasonal records only).

GAGE.--Nonrecording gage. Altitude of gage is 5,860 ft (1,786 m), from topographic map. Aug. 31, 1959, to Oct. 2, 1959, nonrecording gage at present site but at a different datum. Oct. 3, 1959, to September 1963, water-stage recorder at site 75 ft (23 m) upstream at different datum.

REMARKS.--Records fair. Flow regulated by Hebgen Lake (see p. 605,612). Diversions for irrigation of about 1,500 acres (6.07 km^2) above station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,710 ft^3/s (133 m^3/s) Oct. 23, 1959, gage height, 3.04 ft (0.930 m), site and datum then in use; minimum daily, 280 ft^3/s (7.93 m^3/s) May 26, 27, 1960.

EXTREMES FOR CURRENT SEASON.--Maximum discharge observed, 1,520 ft^3/s (43.0 m^3/s) May 1, gage height, 1.53 ft (0.466 m); minimum daily, 519 ft^3/s (14.7 m^3/s) June 21-22, July 3-4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1								1520	839	668		
2								1190	775	560		
3								1000	906	519		
4								865	906	519		
5								865	919	560		
6								839	975	645		
7								839	947	602		
8								813	788	549		
9								813	714	656		
10								813	775	738		
11								813	549	738		
12								788	591	738		
13								788	738	738		
14								788	839	738		
15								813	865	679		
16								839	691	623		
17								865	645	623		
18								1000	560	623		
19								1000	602	691		
20								1030	549	788		
21								1030	519	813		
22								1160	519	826		
23								1160	539	839		
24								1160	539	852		
25								1160	623	839		
26								1130	656	839		
27								1130	703	839		
28								1160	738	839		
29								1200	750	839		
30								1000	691	839		
31								1000	---	839		
TOTAL								30571	21450	22198		
MEAN								986	715	716		
MAX								1520	975	852		
MIN								788	519	519		
AC-FT								60640	42550	44030		

06040300 JACK CREEK NEAR ENNIS, MT

LOCATION.--Lat 45°21'23", long 111°34'51", in NE¼SE¼ sec.34, T.5 S., R.1 E., Madison County, Hydrologic Unit 10020007, Beaverhead National Forest, on left bank 800 ft (244 m) upstream from bridge at forest boundary, 8.8 mi (14.2 km) east of Ennis.

DRAINAGE AREA.--51.5 mi² (133.4 km²).

PERIOD OF RECORD.--September 1973 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 5,600 ft (1,707 m), from topographic map.

REMARKS.--Records good except those for May 25 to June 29, which are poor. No regulation or diversion above station. Several observations of water temperature were made during the year and are available in files of the Helena district office.

AVERAGE DISCHARGE.--6 years, 46.1 ft³/s (1.306 m³/s), 33,400 acre-ft/yr (41.2 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 555 ft³/s (15.7 m³/s) June 14, 1974, gage height, 3.97 ft (1.210 m), in gage well, about 4.97 ft (1.515 m), from outside gage; maximum gage height, 4.37 ft (1.332 m) Jan. 1, 1979 (backwater from ice); minimum discharge, 5.0 ft³/s (0.14 m³/s) Mar. 7, 1975, gage height, 1.84 ft (0.561 m); minimum gage height, 1.81 ft (0.552 m) Mar. 10, 1979.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 150 ft³/s (4.25 m³/s) and maximums (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Jan. 1	1300	Ice jam		*4.37	1.332	June 19	2230	155	4.39	2.91	0.887
May 27	2000	*308	8.72	3.50	1.067						

Minimum discharge, 6.1 ft³/s (0.17 m³/s) Mar. 10, gage height, 1.81 ft (0.552 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	35	26	21	11	14	13	13	59	121	100	34	26
2	34	25	18	14	14	13	13	58	119	94	34	25
3	33	25	20	16	13	13	13	59	124	90	33	25
4	33	26	22	16	14	13	13	62	122	84	32	25
5	33	23	19	16	14	13	13	69	124	80	32	25
6	32	22	16	16	13	13	15	67	132	76	31	24
7	32	23	15	16	14	15	16	56	123	74	31	25
8	31	24	18	16	13	14	16	50	116	71	31	24
9	31	24	21	15	13	13	17	44	112	69	31	24
10	30	12	21	15	13	12	16	40	110	66	30	24
11	29	13	21	15	13	14	15	38	113	64	30	24
12	29	18	20	15	13	14	14	37	117	61	30	24
13	29	22	18	15	14	13	15	42	127	60	34	23
14	27	20	20	15	14	13	14	53	129	57	33	22
15	27	22	19	15	14	14	16	67	124	55	31	22
16	27	24	17	15	14	14	20	92	120	53	30	21
17	28	25	19	14	14	14	31	98	122	51	30	20
18	29	23	19	15	13	14	33	96	124	49	30	21
19	27	20	16	15	13	13	28	103	150	48	31	21
20	26	19	16	15	13	13	23	111	148	46	31	21
21	26	22	16	15	13	13	23	126	138	44	31	21
22	26	24	18	14	13	13	26	142	125	49	29	21
23	25	23	18	14	13	13	30	150	114	49	28	21
24	25	22	18	15	13	14	28	162	110	44	28	20
25	25	20	17	15	13	14	26	161	105	43	26	20
26	25	22	15	14	13	14	25	186	105	42	28	20
27	25	21	15	14	13	14	30	221	107	40	30	19
28	24	21	13	14	13	14	42	221	107	40	28	19
29	25	21	8.0	14	---	14	47	162	105	40	27	19
30	21	21	9.0	14	---	13	54	140	101	37	26	19
31	21	---	9.0	14	---	13	---	134	---	36	26	---
TOTAL	870	653	538.0	457	374	417	685	3108	3594	1812	938	665
MEAN	28.1	21.8	17.4	14.7	13.4	13.5	22.8	100	120	58.5	30.3	22.2
MAX	35	26	22	16	14	15	54	221	150	100	34	26
MIN	21	12	8.0	11	13	12	13	37	101	36	26	19
AC-FT	1730	1300	1070	906	742	827	1360	6160	7130	3590	1860	1320

CAL YR 1978 TOTAL 19515.0 MEAN 53.5 MAX 263 MIN 8.0 AC-FT 38710
WTR YR 1979 TOTAL 14111.0 MEAN 38.7 MAX 221 MIN 8.0 AC-FT 27990

06041000 MADISON RIVER BELOW ENNIS LAKE, NEAR MCALLISTER, MT

LOCATION.--Lat 45°29'25", long 111°38'00", in NW¼ sec.17, T.4 S., R.1 E., Madison County, Hydrologic Unit 10020007, on right bank 500 ft (152 m) downstream from Madison powerplant, 1.5 mi (2.4 km) downstream from Ennis Lake, and 5.7 mi (9.2 km) northeast of McAllister.

DRAINAGE AREA.--2,186 mi² (5,662 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1901 to December 1905, October 1906 to current year. Prior to October 1938 adjusted monthly runoff only, published in WSP 1309. Published as "below Madison Reservoir" 1938-49. Records published as "near Red Bluff" 1890-94 and as "near Norris" 1910 are not equivalent and are published as "near Norris" in WSP 1309.

REVISED RECORDS.--WSP 1559: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 4,689.03 ft (1,429.216 m) National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to May 7, 1941, nonrecording gage in wooden stilling well at present site at different datum. May 7, 1941, to Jan. 13, 1945, nonrecording gages in concrete stilling well at present site and datum.

REMARKS.--Water-discharge records good. Flow regulated by Hebgen and Ennis Lakes (see p.606,6120). Diversions for irrigation of about 23,000 acres (93.1 km²) above station.

AVERAGE DISCHARGE.--41 years (1938-79), 1,758 ft³/s (49.79 m³/s), 1,274,000 acre-ft/yr (1.57 km³/yr), unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,550 ft³/s (270 m³/s) June 12, 1970, gage height, 8.01 ft (2.441 m); minimum daily, 210 ft³/s (5.95 m³/s) Aug. 25, 26, 1959.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,960 ft³/s (112 m³/s) May 28, gage height, 5.13 ft (1.564 m); minimum daily, 869 ft³/s (24.6 m³/s) Jan. 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1810	2090	2320	942	1010	1460	2000	1980	1590	1280	1100	1160
2	1810	2090	2280	929	1220	1460	1950	1870	1540	1130	1100	1130
3	1800	2110	2200	875	1330	1460	1950	1710	1430	1080	1100	1130
4	1800	2190	2030	875	1350	1310	1950	1550	1370	1010	1100	1140
5	1800	2160	1950	869	1240	1210	1960	1420	1360	1050	1120	1150
6	1810	2140	1620	902	1180	1340	2000	1410	1490	1190	1120	1190
7	1810	2130	1110	958	1180	1460	2270	1390	1650	1100	1120	1210
8	1810	2140	960	980	1180	1670	2340	1360	1730	905	1120	1180
9	1840	2140	984	1100	1330	1700	2280	1270	1730	912	1110	1170
10	1890	2060	947	1150	1440	1630	2150	1210	1610	1100	1110	1160
11	2050	1550	1080	1150	1440	1620	2060	1210	1410	1150	1120	1130
12	2170	2140	1290	1320	1250	1600	1970	1210	1240	1120	1120	1130
13	2100	2190	1420	1410	1160	1540	1980	1210	1210	1130	1120	1150
14	2070	2200	1180	1190	1180	1510	1990	1210	1230	1120	1120	1170
15	2070	2190	1180	1330	1350	1580	2000	1220	1360	1120	1120	1180
16	2070	2180	1370	1350	1530	1670	1870	1290	1410	1120	1130	1170
17	2100	2220	1130	1320	1510	1800	1980	1410	1380	1110	1130	1160
18	2140	2280	1240	1330	1540	1810	2150	1460	1340	1110	1080	1150
19	2140	2210	1370	1390	1550	1650	2160	1580	1420	1110	1120	1150
20	2140	2000	1410	1430	1500	1550	2140	1770	1450	1120	1130	1120
21	2140	2000	1410	1430	1510	1490	2000	1780	1420	1100	1240	1140
22	2140	2160	1110	1430	1580	1930	1910	1890	1390	1120	1260	1180
23	2090	2230	1160	1210	1550	2120	1950	2240	1380	1130	1120	1200
24	2030	2280	1410	1140	1340	2090	2110	2470	1290	1120	1120	1250
25	2020	2280	1410	1350	1180	2110	2240	2560	1230	1110	1120	1310
26	2020	2280	1410	1200	1350	2100	2060	2590	1230	1110	1030	1400
27	2050	2290	1380	1240	1440	2090	1980	2600	1300	1110	1140	1490
28	2070	2250	1070	1340	1450	2090	2060	3320	1370	1120	1180	1510
29	2070	2270	937	1340	---	2080	2030	3680	1360	1120	1190	1410
30	2070	2290	942	1190	---	2080	2040	2810	1370	1110	1180	1290
31	2090	---	942	1020	---	2070	---	1910	---	1110	1190	---
TOTAL	62020	64740	42272	36690	37870	53280	61530	56590	42290	34227	35060	36270
MEAN	2001	2158	1364	1184	1353	1718	2051	1825	1410	1104	1131	1209
MAX	2170	2290	2320	1430	1580	2120	2340	3680	1730	1280	1260	1510
MIN	1800	1550	937	869	1010	1210	1870	1210	1210	905	1030	1120
AC-FT	123000	128400	83850	72770	75120	105600	122000	112200	83880	67890	69540	71940

CAL YR 1978 TOTAL 662084 MEAN 1814 MAX 3390 MIN 816 AC-FT 1313000
WTR YR 1979 TOTAL 562819 MEAN 1542 MAX 3680 MIN 869 AC-FT 1116000

06041000 MADISON RIVER BELOW ENNIS LAKE, NEAR MCALLISTER, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1972-73, 1977 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: June 1977 to current year.

INSTRUMENTATION.--Temperature recorder since June 21, 1977.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum, 22.5°C July 24, 25, Aug. 1, 1979; minimum, 0.0°C Nov. 19-22, 1977, Nov. 10-14, 1978.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum, 22.5°C July 24, 25, Aug. 1; minimum, 0.0°C Nov. 10-14.

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	13.0	12.5	12.5	5.5	5.0	5.0	.5	.5	.5	1.0	1.0	1.0
2	---	---	---	5.0	4.5	4.5	.5	.5	.5	1.0	1.0	1.0
3	12.0	---	---	5.0	4.5	4.5	.5	.5	.5	1.0	1.0	1.0
4	12.0	11.5	12.0	6.0	5.0	5.5	.5	.5	.5	1.0	1.0	1.0
5	12.0	11.5	11.5	6.5	5.0	5.5	.5	.5	.5	1.0	1.0	1.0
6	11.5	11.0	11.5	5.0	4.5	5.0	.5	.5	.5	1.0	1.0	1.0
7	11.0	10.5	10.5	4.5	4.0	4.5	.5	.5	.5	1.0	1.0	1.0
8	11.5	11.0	11.0	4.0	3.5	4.0	.5	.5	.5	1.0	1.0	1.0
9	12.0	11.0	11.5	4.0	2.0	3.5	.5	.5	.5	1.0	1.0	1.0
10	12.0	11.0	11.5	2.0	.0	.5	1.0	.5	.5	1.0	1.0	1.0
11	11.0	11.0	11.0	.0	.0	.0	1.0	.5	1.0	1.0	1.0	1.0
12	11.0	10.5	10.5	.0	.0	.0	1.0	1.0	1.0	1.0	.5	1.0
13	10.5	10.0	10.0	.0	.0	.0	1.0	1.0	1.0	1.0	.5	.5
14	10.5	10.0	10.0	.5	.0	.0	1.0	1.0	1.0	.5	.5	.5
15	10.0	9.5	10.0	.5	.5	.5	1.0	1.0	1.0	.5	.5	.5
16	10.0	9.5	9.5	.5	.5	.5	1.0	1.0	1.0	.5	.5	.5
17	9.5	9.5	9.5	.5	.5	.5	1.0	1.0	1.0	.5	.5	.5
18	10.0	9.5	9.5	.5	.5	.5	1.0	1.0	1.0	.5	.5	.5
19	10.0	9.5	9.5	.5	.5	.5	1.0	.5	1.0	.5	.5	.5
20	9.5	9.5	9.5	.5	.5	.5	1.0	.5	1.0	.5	.5	.5
21	9.5	9.0	9.5	.5	.5	.5	1.0	.5	1.0	.5	.5	.5
22	9.0	9.0	9.0	.5	.5	.5	1.0	.5	1.0	.5	.5	.5
23	9.0	8.5	8.5	.5	.5	.5	1.0	.5	.5	.5	.5	.5
24	8.5	7.5	8.0	.5	.5	.5	1.0	.5	1.0	.5	.5	.5
25	7.5	7.0	7.0	.5	.5	.5	1.0	.5	.5	.5	.5	.5
26	7.0	6.0	6.5	.5	.5	.5	1.0	.5	.5	.5	.5	.5
27	6.5	5.5	6.0	.5	.5	.5	1.0	.5	.5	.5	.5	.5
28	7.0	6.5	6.5	.5	.5	.5	.5	.5	.5	.5	.5	.5
29	7.0	6.0	6.5	.5	.5	.5	1.0	.5	.5	.5	.5	.5
30	6.0	5.5	5.5	.5	.5	.5	1.0	.5	1.0	.5	.5	.5
31	5.5	5.0	5.0	---	---	---	1.0	.5	1.0	.5	.5	.5
MONTH	13.0	5.0	9.5	6.5	.0	1.5	1.0	.5	.5	1.0	.5	.5

06041000 MADISON RIVER BELOW ENNIS LAKE, NEAR McALLISTER, MT--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	.5	.5	.5	1.0	1.0	1.0	3.5	3.0	3.5	10.5	10.5	10.5
2	.5	.5	.5	1.0	1.0	1.0	4.0	3.5	3.5	10.5	9.0	10.0
3	.5	.5	.5	1.0	.5	1.0	4.5	3.5	4.0	10.5	9.0	9.5
4	.5	.5	.5	1.0	.5	1.0	4.0	4.0	4.0	11.0	10.0	10.5
5	.5	.5	.5	1.0	.5	1.0	4.0	3.5	4.0	11.0	10.5	11.0
6	.5	.5	.5	1.0	.5	1.0	4.0	3.5	4.0	10.5	9.5	10.0
7	.5	.5	.5	1.0	.5	1.0	4.5	3.5	4.0	9.5	9.0	9.5
8	.5	.5	.5	1.0	.5	1.0	5.0	4.0	4.5	9.5	8.0	9.0
9	.5	.5	.5	1.5	1.0	1.0	4.5	4.5	4.5	8.0	7.0	7.5
10	1.0	.5	.5	1.5	1.0	1.5	4.5	3.5	4.0	7.5	6.5	7.0
11	1.0	.5	.5	2.0	1.5	1.5	3.5	3.0	3.0	8.5	7.5	8.0
12	1.0	.5	1.0	2.5	2.0	2.0	3.5	3.0	3.0	9.5	8.5	9.0
13	1.0	1.0	1.0	2.5	2.0	2.5	3.5	2.5	3.0	10.5	9.5	10.0
14	1.0	.5	1.0	3.0	2.5	2.5	3.5	2.5	3.0	11.0	10.5	10.5
15	1.0	.5	1.0	3.0	2.5	2.5	3.5	3.0	3.0	11.5	10.5	11.0
16	1.0	1.0	1.0	3.0	2.5	3.0	3.5	2.5	3.0	12.0	11.5	12.0
17	1.0	1.0	1.0	3.0	2.5	3.0	4.0	1.5	3.0	12.5	12.0	12.0
18	1.0	1.0	1.0	3.0	2.5	2.5	4.5	2.0	3.5	13.5	12.0	12.5
19	1.5	1.0	1.0	2.5	2.0	2.5	5.0	4.5	4.5	15.0	13.5	14.0
20	1.0	1.0	1.0	3.0	2.0	2.5	5.0	4.0	4.5	15.0	13.0	14.0
21	1.0	1.0	1.0	3.0	2.5	2.5	6.5	5.0	5.5	16.0	14.0	15.0
22	1.0	.5	1.0	3.0	2.5	3.0	7.5	6.0	6.5	16.0	15.0	15.5
23	1.0	.5	1.0	3.0	2.5	3.0	8.5	7.5	8.0	17.0	14.5	15.5
24	1.0	.5	1.0	3.5	3.0	3.0	7.5	6.5	6.5	16.5	15.0	16.0
25	1.0	.5	1.0	3.0	3.0	3.0	7.0	6.0	6.5	16.5	16.0	16.0
26	1.0	.5	1.0	3.0	3.0	3.0	7.5	6.5	7.0	19.0	15.0	16.5
27	1.0	1.0	1.0	3.0	3.0	3.0	9.0	7.0	7.5	19.0	16.0	17.0
28	1.0	1.0	1.0	4.0	3.0	3.5	9.5	9.0	9.0	16.0	14.0	14.5
29	---	---	---	4.0	3.5	4.0	11.0	9.0	9.5	13.5	10.5	11.5
30	---	---	---	3.5	3.0	3.5	11.0	10.0	10.5	12.5	10.5	11.5
31	---	---	---	3.5	3.0	3.0	---	---	---	12.5	11.5	12.0
MONTH	1.5	.5	1.0	4.0	.5	2.0	11.0	1.5	5.0	19.0	6.5	12.0

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	13.0	10.5	11.5	20.5	19.5	20.0	22.5	21.0	21.5	18.0	17.5	17.5
2	14.0	12.0	13.0	19.0	18.5	18.5	22.0	21.0	21.5	18.5	18.0	18.0
3	15.5	13.0	14.0	19.0	17.5	18.0	22.0	21.0	21.5	18.5	17.5	18.0
4	16.5	15.5	15.5	19.5	19.0	19.0	21.5	21.0	21.5	18.0	17.0	17.5
5	16.5	15.5	16.0	19.5	18.5	19.0	22.0	21.0	21.5	17.0	16.5	17.0
6	16.5	15.5	16.0	---	---	---	22.0	22.0	22.0	17.0	16.0	16.5
7	15.5	14.5	15.0	---	---	---	22.0	21.0	21.5	18.0	16.5	17.5
8	14.5	13.0	14.0	---	---	---	21.5	21.0	21.5	18.5	17.0	17.5
9	15.5	13.0	14.0	---	---	---	21.5	21.0	21.0	18.5	17.5	18.0
10	16.0	15.0	15.5	---	---	---	21.0	20.5	20.5	17.5	16.5	17.0
11	16.0	15.0	15.5	---	---	---	21.0	20.5	20.5	17.0	16.0	16.5
12	17.0	16.0	16.0	---	---	---	21.0	20.0	20.5	16.5	16.0	16.0
13	17.0	16.5	16.5	---	---	---	20.0	18.5	19.5	16.5	15.5	16.0
14	16.5	16.0	16.5	---	---	---	18.5	17.5	18.0	16.0	15.5	15.5
15	16.0	15.5	16.0	---	---	---	19.0	17.0	18.0	---	15.5	---
16	16.5	15.5	16.0	---	---	---	19.5	19.0	19.5	---	---	---
17	17.0	15.0	16.0	---	---	---	19.0	19.0	19.0	---	---	---
18	16.5	15.5	16.0	---	---	---	19.0	18.0	18.5	---	---	---
19	15.5	15.0	15.0	---	---	---	19.0	18.5	19.0	---	---	---
20	16.5	15.0	15.5	---	---	---	19.0	19.0	19.0	---	---	---
21	16.5	16.0	16.0	---	---	---	19.5	18.5	19.0	---	---	---
22	16.5	15.5	15.5	---	---	---	19.5	19.0	19.0	---	---	---
23	17.0	16.0	16.5	22.0	---	---	19.0	18.5	18.5	---	---	---
24	18.0	17.0	17.5	22.5	22.0	22.5	19.0	18.0	18.5	---	---	---
25	19.0	17.5	18.0	22.5	22.0	22.5	19.0	18.5	18.5	---	---	---
26	19.0	17.5	18.0	22.0	21.0	21.5	19.0	18.5	19.0	---	---	---
27	20.5	18.0	19.0	21.5	21.0	21.0	19.0	18.5	18.5	---	---	---
28	21.0	19.5	20.5	21.5	21.0	21.0	18.5	18.0	18.5	---	---	---
29	21.0	20.0	20.5	20.5	20.0	20.5	19.0	18.5	19.0	---	---	---
30	20.5	20.0	20.5	20.5	19.5	20.0	19.0	18.0	18.5	---	---	---
31	---	---	---	21.5	19.5	20.0	19.0	17.5	18.5	---	---	---
MONTH	21.0	10.5	16.0	22.5	17.5	20.5	22.5	17.0	19.5	18.5	15.5	17.0
YEAR	22.5	.0	8.0									

06043500 GALLATIN RIVER NEAR GALLATIN GATEWAY, MT

LOCATION.--Lat 45°29'51", long 111°16'09", in SE¼SE¼SE¼ sec.7, T.4 S., R.4 E., Gallatin County, Hydrologic Unit 10020008, on left bank 0.3 mi (0.5 km) downstream from Spanish Creek, 7.3 mi (11.7 km) south of Gallatin Gateway, and at mile 42.5 (68.4 km).

DRAINAGE AREA.--825 mi² (2,137 km²).

PERIOD OF RECORD.--August 1889 to September 1894, June 1930 to September 1969, annual maximum, water years 1970-71, October 1971 to current year. Monthly discharge only for some periods, published in WSP 1309. Published as West Gallatin River near Bozeman 1889-94.

REVISED RECORDS.--WSP 1389: 1892(M), 1893-94. WSP 1559: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 5,167.7 ft (1,575.11 m) National Geodetic Vertical Datum of 1929. Prior to Oct. 20, 1932, nonrecording gages at several different sites and datums within 0.8 mi (1.3 km) of present site.

REMARKS.--Records good. Diversions for irrigation of about 1,400 acres (5.67 km²) above station. Several observations of water temperature were made during the year and are available in files of Helena district office.

AVERAGE DISCHARGE.--52 years, 815 ft³/s (23.08 m³/s), 590,500 acre-ft/yr (728 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,690 ft³/s (274 m³/s) June 17, 1974, gage height, 7.38 ft (2.249 m); minimum, 117 ft³/s (3.31 m³/s) Jan. 19, 1935, gage height, 0.68 ft (0.207 m).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,900 ft³/s (82.1 m³/s) and maximums (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
May 28	0200	*4,730	134	*4.87	1.484	June 14	0100	4,150	118	4.58	1.369
June 6	0400	3,710	105	4.34	1.323						

Minimum discharge, 243 ft³/s (6.88 m³/s) Feb. 5, gage height, 1.20 ft (0.366 m), but may have been less during period of no gage-height record, Dec. 29 to Jan. 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	615	446	385	290	312	298	289	703	1960	2040	631	490
2	594	458	354	310	314	288	280	705	1870	1830	613	468
3	575	453	319	320	307	267	290	744	2020	1680	599	451
4	571	457	338	310	303	267	295	822	2570	1590	585	441
5	553	426	352	300	312	263	301	917	3090	1500	570	439
6	545	388	310	300	325	281	316	970	3430	1410	560	428
7	539	416	278	300	330	302	342	836	2870	1350	559	421
8	533	443	277	310	312	309	319	774	2340	1280	572	414
9	523	469	309	330	320	292	339	704	2070	1220	589	408
10	516	329	328	350	315	274	339	648	2070	1150	560	407
11	508	301	343	370	309	274	325	639	2370	1110	545	412
12	503	371	350	334	307	291	311	626	2780	1070	547	412
13	482	406	312	335	316	300	318	651	3500	1070	638	412
14	492	334	322	332	310	303	309	744	3680	1010	720	405
15	492	309	334	355	287	304	335	887	3060	958	610	400
16	489	357	313	342	293	321	357	1190	2750	926	571	396
17	493	364	331	307	303	334	427	1460	2680	893	566	401
18	508	373	345	325	299	319	476	1580	2560	863	555	400
19	487	345	345	324	301	313	444	1730	2890	840	586	396
20	480	326	339	319	305	304	394	1840	2750	831	627	396
21	475	337	331	324	294	309	394	2060	2800	816	607	394
22	469	395	336	319	298	307	409	2380	2810	849	577	389
23	450	402	339	304	290	296	453	2650	2630	1030	544	386
24	468	371	340	299	292	304	480	3060	2570	839	550	385
25	450	349	337	308	292	316	448	3100	2610	795	563	385
26	450	364	321	302	290	309	435	3380	2630	774	537	391
27	447	365	329	298	291	309	449	3840	2530	751	550	395
28	456	365	317	299	298	312	556	4250	2410	733	540	387
29	465	338	280	280	---	310	611	3210	2260	726	513	382
30	393	370	280	289	---	304	656	2550	2180	682	491	379
31	380	---	270	296	---	295	---	2220	---	654	484	---
TOTAL	15403	11429	10064	9781	8525	9275	11697	51870	78740	33270	17759	12270
MEAN	497	381	325	316	304	299	390	1673	2625	1073	573	409
MAX	615	469	385	370	330	334	656	4250	3680	2040	720	490
MIN	380	301	270	280	287	263	280	626	1870	654	484	379
AC-FT	30550	22670	19960	19400	16910	18400	23200	102900	156200	65990	35220	24340

CAL YR 1978 TOTAL 336614 MEAN 922 MAX 4920 MIN 256 AC-FT 667700
WTR YR 1979 TOTAL 270083 MEAN 740 MAX 4250 MIN 263 AC-FT 535700

06050000 HYALITE CREEK AT HYALITE RANGER STATION, NEAR BOZEMAN, MT

LOCATION.--Lat 45°33'42", long 111°04'12", in NW¼SE¼ sec.23, T.3 S., R.5 E., Gallatin County, Hydrologic Unit 10020008, Gallatin National Forest, on right bank 0.8 mi (1.3 km) south of Hyalite ranger station, 7.3 mi (11.7 km) south of Bozeman, and 20 mi (32 km) upstream from mouth.

DRAINAGE AREA.--48.2 mi² (124.8 km²).

PERIOD OF RECORD.--August 1895 to October 1896, calendar year 1897 (discharge measurements only), April 1898 to October 1899, June to October 1900, May to September 1902, calendar year 1903 (discharge measurements only), September to December 1904, September 1934 to current year. Monthly discharge only for some periods, published in WSP 1309. Prior to 1934, published as Middle Creek near Bozeman.

REVISED RECORDS.--WSP 84: 1898-99. WSP 1509: 1902, 1939(M). WSP 1559: Drainage area. WSP 1709: 1953, 1956-57.

GAGE.--Water-stage recorder. Datum of gage is 5,539.6 ft (1,688.47 m) National Geodetic Vertical Datum of 1929. Prior to September 1934, nonrecording gages at two sites 0.5 mi (0.8 km) upstream at different datums. Sept. 13, 1934, to May 13, 1948, water-stage recorder at site 0.3 mi (0.5 km) downstream at different datum.

REMARKS.--Records good except those for winter period, which are poor. Flow regulated by Middle Creek Reservoir (see p.606,612) since March 1951. Several observations of water temperature were made during the year and are available in files of Helena district office.

AVERAGE DISCHARGE.--47 years (1895-96, 1898-99, 1934-79), 67.2 ft³/s (1.903 m³/s), 18.93 in/yr (481 mm/yr), 48,700 acre-ft/yr (60.0 hm³/yr), adjusted for storage in Middle Creek Reservoir.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge observed, 956 ft³/s (27.1 m³/s) June 14, 1898, gage height, 2.10 ft (0.640 m), site and datum then in use; maximum gage height, 4.01 ft (1.222 m) Dec. 15-18, 1940 (backwater from ice), site and datum then in use; minimum daily discharge, 5.0 ft³/s (0.14 m³/s) Jan. 27, 1961.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 349 ft³/s (9.88 m³/s) June 20, gage height, 2.57 ft (0.783 m); maximum gage height, 3.74 ft (1.140 m) Dec. 29-30 (backwater from ice); minimum discharge, 16 ft³/s (0.45 m³/s) Mar. 21, gage height, 1.40 ft (0.427 m), but may have been less during period of ice effect.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	69	31	33	20	21	21	20	88	169	287	100	70
2	68	33	32	21	22	21	21	81	171	258	106	68
3	66	40	30	21	22	21	19	88	170	227	105	66
4	66	42	28	21	23	21	20	91	154	185	105	66
5	66	40	27	20	23	21	20	100	152	185	103	66
6	66	39	25	20	23	21	22	94	152	176	103	65
7	66	42	23	20	23	22	23	81	163	169	101	57
8	66	43	23	20	23	21	22	74	158	160	100	55
9	64	45	23	20	23	20	23	67	174	153	98	55
10	63	40	24	21	22	21	24	65	154	142	93	55
11	62	37	26	22	22	20	23	67	149	135	90	50
12	62	37	26	21	22	20	22	67	150	130	90	50
13	59	37	25	21	23	20	23	73	160	123	90	50
14	54	37	26	20	24	20	28	81	194	120	88	50
15	53	38	25	20	21	20	35	92	235	96	86	50
16	53	40	24	20	21	21	38	108	227	96	86	50
17	54	41	25	21	21	21	46	108	219	92	84	48
18	55	40	25	21	22	20	50	105	221	86	83	48
19	53	37	25	21	22	20	47	102	268	81	84	48
20	53	35	25	22	22	20	43	96	333	83	84	44
21	51	36	24	22	21	20	42	95	318	95	81	43
22	39	36	23	22	21	20	44	97	316	99	82	42
23	38	37	22	21	21	19	48	91	306	99	80	41
24	39	37	22	21	21	20	49	91	295	105	80	35
25	38	37	22	21	21	20	46	93	270	107	81	35
26	32	37	22	21	21	20	46	112	281	105	80	35
27	32	38	21	21	21	20	52	152	321	106	81	34
28	32	38	21	21	21	19	67	168	313	108	80	33
29	33	37	20	21	---	20	75	173	307	107	78	33
30	31	33	19	20	---	20	86	162	289	105	69	33
31	33	---	18	20	---	20	---	163	---	102	69	---
TOTAL	1616	1140	754	644	613	630	1124	3125	6789	4122	2740	1475
MEAN	52.1	38.0	24.3	20.8	21.9	20.3	37.5	101	226	133	88.4	49.2
MAX	69	45	33	22	24	22	86	173	333	287	106	70
MIN	31	31	18	20	21	19	19	65	149	81	69	33
AC-FT	3210	2260	1500	1280	1220	1250	2230	6200	13470	8180	5430	2930
MEAN +	41.6	34.3	24.4	23.4	21.4	25.0	38.3	159	237	102	51.2	38.3
CFSM +	.86	.71	.51	.49	.44	.52	.79	3.30	4.92	2.12	1.06	.79
IN +	1.00	.79	.58	.56	.46	.60	.89	3.80	5.49	2.45	1.23	.89
AC-FT+	2,560	2,040	1,500	1,440	1,190	1,540	2,280	9,770	14,110	6,290	3,150	2,280

OBSERVED

CAL YR 1978	TOTAL	27,700	MEAN	75.9	MAX	236	MIN	13	AC-FT	54,940
WTR YR 1979	TOTAL	24,772	MEAN	67.9	MAX	333	MIN	18	AC-FT	49,140

ADJUSTED

CAL YR 1978	TOTAL	27,699	MEAN	75.9	CFSM	1.57	IN	21.37	AC-FT	54,940
WTR YR 1979	TOTAL	24,265	MEAN	66.5	CFSM	1.38	IN	18.72	AC-FT	48,130

(+) Adjusted for change in contents in Middle Creek Reservoir.

06052500 GALLATIN RIVER AT LOGAN, MT

LOCATION.--Lat 45°53'07", long 111°26'15", in NE¼ sec.35, T.2 N., R.2 E., Gallatin County, Hydrologic Unit 10020008, on right bank at former county road bridge site, 0.5 mi (0.8 km) west of Logan and 6 mi (10 km) upstream from mouth.

DRAINAGE AREA.--1,795 mi² (4,649 km²).

PERIOD OF RECORD.--September 1893 to December 1905, August 1928 to current year. Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WSP 1389: 1898-99, 1903, 1905, 1929(M), 1935-36(M), 1938-39(M), 1941(M). WSP 1559: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 4,086.42 ft (1,245.541 m) National Geodetic Vertical Datum of 1929. Prior to Aug. 10, 1928, nonrecording gages at several sites within 0.5 mi (0.8 km) of present site at various datums. Aug. 10, 1928, to Oct. 7, 1941, nonrecording gage at present site and datum.

REMARKS.--Records good except those for winter period, which are fair. Some regulation by Middle Creek Reservoir (see p.606,612). Diversions for irrigation of about 110,000 acres (445 km²) above station. Several observations of water temperature were made during the year and are available in files of Helena district office.

AVERAGE DISCHARGE.--63 years, 1,057 ft³/s (29.93 m³/s), 765,800 acre-ft/yr (944 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge observed, 9,840 ft³/s (279 m³/s) June 21, 1899, gage height, 6.25 ft (1.905 m), site and datum then in use; maximum gage height, 11.88 ft (3.621 m) Feb. 5, 1963, from floodmark (backwater from ice); minimum discharge observed, 130 ft³/s (3.68 m³/s) July 19, 1939, gage height, 2.04 ft (0.622 m).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,700 ft³/s (76.5 m³/s) and maximums (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Jan. 3	1315	Ice jam		*9.38	2.859
May 29	unknown	a*4,300	122	unknown	
June 6	1500	3,410	96.6	6.11	1.862
June 14	1345	3,440	97.4	6.13	1.868
June 20	1130	4,030	114	6.50	1.981

a--about

Minimum discharge, 379 ft³/s (10.7 m³/s) Aug. 6, 7, gage height, 3.21 ft (0.978 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1130	991	944	580	610	758	915	1680	2380	2320	423	626
2	1120	1040	927	630	620	735	883	1760	2060	2090	404	619
3	1100	1040	890	670	660	706	890	1690	1970	1830	391	610
4	1090	1040	899	650	700	722	885	1710	2240	1600	392	584
5	1070	1030	906	580	730	724	901	1840	2660	1450	390	591
6	1060	994	880	590	740	750	1110	2070	3140	1250	391	584
7	1050	987	830	610	750	902	1400	2040	3070	1120	382	577
8	1060	1010	780	630	700	1250	1280	1800	2590	1040	398	562
9	1040	980	790	660	730	958	1220	1670	2170	993	411	552
10	1040	900	820	680	760	847	1220	1530	1990	819	400	566
11	1030	860	840	720	800	821	1190	1440	2070	725	409	589
12	1020	840	863	750	830	865	1120	1410	2220	650	416	590
13	1020	820	820	740	850	997	1070	1390	2660	618	463	588
14	1000	830	840	720	760	949	1050	1450	3200	586	542	577
15	1010	850	860	700	720	937	1060	1520	3040	583	554	554
16	1010	880	820	680	700	974	1140	1680	2580	561	528	533
17	1010	904	830	690	730	1080	1240	2050	2400	518	525	538
18	1030	920	840	720	751	1050	1410	2220	2460	487	513	531
19	1020	919	830	750	756	1040	1430	2290	3460	460	524	523
20	1000	874	832	780	757	971	1350	2320	3890	450	556	521
21	990	840	820	790	742	928	1280	2370	3670	444	566	532
22	980	850	823	800	741	946	1270	2520	3570	452	589	544
23	970	870	825	760	750	935	1330	2690	3370	539	575	564
24	964	890	831	770	721	984	1400	2900	3180	531	557	576
25	974	860	845	770	741	1160	1410	3100	3070	498	644	560
26	984	880	820	760	749	1020	1330	3200	3030	464	658	563
27	973	900	790	760	760	965	1290	3500	2930	448	674	566
28	968	904	800	750	774	920	1350	3700	2800	444	666	560
29	1000	908	720	710	---	949	1480	4000	2620	485	640	550
30	1020	898	600	640	---	951	1570	3320	2440	482	616	538
31	958	---	560	600	---	940	---	2760	---	446	604	---
TOTAL	31691	27509	25475	21660	20632	28734	36474	69620	82930	25385	15803	16968
MEAN	1022	917	822	699	737	927	1216	2246	2764	819	510	566
MAX	1130	1040	944	800	850	1250	1570	4000	3890	2320	674	626
MIN	958	820	560	580	610	706	883	1390	1970	444	382	521
AC-FT	62860	54560	50530	42960	40920	56990	72350	138100	164500	50350	31350	33660

CAL YR 1978 TOTAL 472549 MEAN 1295 MAX 4690 MIN 435 AC-FT 937300
WTR YR 1979 TOTAL 402881 MEAN 1104 MAX 4000 MIN 382 AC-FT 799100

06052500 GALLATIN RIVER AT LOGAN, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: August to September 1979.

INSTRUMENTATION.--Temperature recorder since August 24, 1979.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum recorded, 20.5°C August 25.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1							---	---	---	18.0	11.0	14.5
2							---	---	---	18.5	14.0	16.0
3							---	---	---	19.0	13.5	16.5
4							---	---	---	17.0	14.5	15.5
5							---	---	---	17.5	11.5	14.5
6							---	---	---	18.0	12.5	15.5
7							---	---	---	19.0	14.0	16.5
8							---	---	---	18.5	15.0	16.5
9							---	---	---	18.5	14.5	16.0
10							---	---	---	17.0	12.5	14.5
11							---	---	---	15.0	11.0	13.0
12							---	---	---	15.0	10.0	12.5
13							---	---	---	14.5	11.0	13.0
14							---	---	---	15.5	10.5	13.0
15							---	---	---	16.0	10.0	13.0
16							---	---	---	16.5	11.0	13.5
17							---	---	---	16.5	12.0	14.0
18							---	---	---	17.0	12.0	14.5
19							---	---	---	16.5	12.0	14.0
20							---	---	---	16.5	11.5	14.0
21							---	---	---	16.0	11.5	13.5
22							---	---	---	16.5	12.0	14.0
23							---	---	---	16.0	12.0	14.0
24							20.0	---	---	16.0	11.5	13.5
25							20.5	15.5	17.5	14.5	11.0	13.0
26							19.0	15.5	17.0	14.5	12.5	13.5
27							17.5	14.0	15.5	15.0	10.5	12.5
28							19.0	13.0	15.5	14.5	10.5	15.5
29							19.5	14.0	16.5	15.5	11.5	13.5
30							19.0	14.5	17.0	14.5	12.0	13.0
31							16.0	13.0	14.0	---	---	---
MONTH							20.5	13.0	16.0	19.0	10.0	14.0
YEAR	20.5	10.0	14.5									

06054500 MISSOURI RIVER AT TOSTON, MT

LOCATION.--Lat 46°08'46", long 111°25'18", in SE¼NW¼ sec.36, T.5 N., R.2 E., Broadwater County, Hydrologic Unit 10030101, on left bank 2.2 mi (3.5 km) southeast of Toston, 4.8 mi (7.7 km) upstream from Crow Creek, 7.8 mi (12.6 km) downstream from Sixteenmile Creek, and at mile 2,296.1 (3,694.4 km).

DRAINAGE AREA.--14,669 mi² (37,993 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1890 to February 1891, April 1910 to December 1916, April 1941 to current year. Monthly discharge only for some periods, published in WSP 1309.

GAGE.--Water-stage recorder. Datum of gage is 3,905.68 ft (1,190.451 m) National Geodetic Vertical Datum of 1929. Prior to Dec. 20, 1916, nonrecording gages at site 2.5 mi (4.0 km) downstream at different datums.

REMARKS.--Water-discharge records good except those for winter period, which are fair. Some regulation by six reservoirs on tributaries (see p. 605-612) and Clark Canyon Reservoir (see p. 42). Diversions for irrigation of about 555,400 acres (2,250 km²) of which 12,000 acres (48.6 km²) lies below station.

AVERAGE DISCHARGE.--44 years, 5,363 ft³/s (151.9 m³/s), 3,885,000 acre-ft/yr (4.79 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 32,000 ft³/s (906 m³/s) June 6, 1948, gage height, 11.77 ft (3.587 m); minimum, 562 ft³/s (15.9 m³/s) Apr. 30, 1941, gage height, 1.68 ft (0.512 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 16,800 ft³/s (476 m³/s) May 29, gage height, 8.8 ft (2.68 m); minimum daily, 1,630 ft³/s (46.2 m³/s) Aug. 11-12.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5320	5160	5530	2000	2900	4020	5170	9530	10800	5460	1820	2820
2	5240	5380	5480	2100	2600	3930	4970	9700	9340	5170	1780	2800
3	5200	5260	4760	2300	3000	3940	4920	9640	8290	4710	1730	2760
4	5160	5430	4900	2700	3300	3760	4880	9330	7860	4400	1690	2700
5	5120	5490	5060	2600	3500	3750	4870	9260	7950	4010	1660	2690
6	5080	5590	5050	2300	3600	3820	5110	9400	8110	3830	1670	2690
7	5040	5410	4010	2100	3500	4860	5810	9370	8860	3760	1650	2690
8	5030	5320	3210	2100	3400	5770	6210	8820	8490	3480	1640	2640
9	4980	5420	2840	2300	3500	5690	6210	8060	7690	3110	1670	2510
10	5030	5350	3050	2500	3600	5310	6220	7400	7050	2880	1660	2460
11	5020	4660	3380	2700	3900	5120	6080	6970	6640	2710	1630	2450
12	5150	4070	3600	3000	4000	5160	5800	6530	6400	2640	1630	2430
13	5150	4450	4130	3000	4440	5540	5620	6330	6450	2500	1660	2430
14	5090	4350	3660	2900	4620	5370	5570	6300	6870	2030	1830	2450
15	5120	4310	3990	2900	3720	5130	5570	6490	7070	2120	1980	2450
16	5120	4370	3550	3000	3510	5040	5710	6970	6710	2060	2190	2430
17	5130	5250	3630	3000	3830	5290	5800	7840	6260	1960	2300	2420
18	5210	4800	3780	3200	3940	5480	6600	8620	6260	1850	2320	2400
19	5270	3560	3800	3500	4090	5280	7320	9080	7800	1740	2250	2330
20	5290	3420	4030	3600	4230	5000	7420	9380	10000	1680	2340	2230
21	5250	3590	3930	3700	4060	4750	6970	9390	9700	1700	2410	2200
22	5200	3610	4080	3800	4060	4720	6480	9380	8950	1660	2620	2170
23	5190	4390	3640	3700	4200	5220	6640	9620	8440	1720	2610	2220
24	5080	5200	3610	3600	3960	5270	7200	10700	7970	1770	2520	2270
25	5060	5640	4140	3200	3790	5440	7770	11600	7450	1740	2630	2300
26	5110	5420	3910	3500	3730	5400	7730	12300	7040	1740	2670	2350
27	5100	5560	3740	3400	3980	5300	7400	13000	6690	1730	2640	2440
28	5150	5510	3580	3400	4130	5220	7430	14300	6470	1730	2790	2510
29	5200	5470	2600	3400	---	5230	8060	16400	6190	1660	2840	2520
30	5280	5430	2100	3300	---	5250	8930	15300	5550	1930	2810	2410
31	5220	---	2000	3000	---	5240	---	12900	---	1860	2750	---
TOTAL	159590	146910	119570	91800	105090	154300	190470	300110	229350	81540	66390	74170
MEAN	5148	4897	3857	2961	3753	4977	6349	9681	7645	2630	2142	2472
MAX	5320	5640	5530	3800	4620	5770	8930	16400	10800	5460	2840	2820
MIN	4980	3420	2000	2000	2600	3750	4870	6300	5550	1660	1630	2170
AC-FT	316500	291400	237200	182100	208400	306100	377800	595300	454900	161700	131700	147100

CAL YR 1978 TOTAL 2102610 MEAN 5761 MAX 15900 MIN 2000 AC-FT 4171000
WTR YR 1979 TOTAL 1719290 MEAN 4710 MAX 16400 MIN 1630 AC-FT 3410000

06054500 MISSOURI RIVER AT TOSTON, MT--Continued
(National Stream Quality Accounting Network)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1949-53, 1972 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: April 1973 to current year.
WATER TEMPERATURES: May 1949 to June 1953, October 1973 to current year.

INSTRUMENTATION.--Temperature recorder since July 6, 1977.

REMARKS.--Sampling location moved in October 1978 from old bridge on U.S. Highway 287, at Toston, to cableway, 2.4 mi (2.9 km) upstream.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 524 micromhos Mar. 4, 1978; minimum daily, 159 micromhos May 28, 1979.
WATER TEMPERATURES: Maximum, 25.5°C July 25, 1949, July 31, 1951, July 23, 1952, July 19, 1979; minimum, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 477 micromhos Jan. 1; minimum daily, 159 micromhos May 28.
WATER TEMPERATURES: Maximum, 25.5°C July 19; minimum, 0.0°C on many days during December to March.

REVISIONS.--The concentrations of total recoverable cadmium and total recoverable lead for June 14, 1978 (1130 hours), were found in error and have been deleted.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE (DEG C) (00010)	TURBIDITY (NTU) (00076)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)
OCT										
11...	1125	5010	1	372	8.5	16.0	10.5	1.0	10.4	109
NOV										
08...	1100	5300	2	385	8.5	10.5	5.5	.10	11.7	108
DEC										
13...	1130	4260	0	410	8.2	-8.0	.0	1.4	13.2	102
JAN										
10...	1100	2500	2	458	7.3	-7.0	.0	2.2	12.3	97
FEB										
06...	1200	3600	1	433	8.1	7.0	.0	2.7	12.5	98
MAR										
06...	1130	3870	61	389	8.3	8.5	.5	9.1	13.0	102
APR										
05...	1100	4840	1	417	8.3	15.0	5.0	2.2	11.8	106
MAY										
09...	1100	8040	3	284	8.1	9.5	7.0	18	10.9	104
JUN										
06...	1100	8210	51	247	8.2	16.0	14.0	15	9.4	106
JUL										
13...	1100	2500	0	356	8.7	19.0	19.5	2.5	8.9	110
AUG										
02...	1030	1770	0	379	8.7	24.0	22.0	5.8	8.7	114
28...	1100	2760	0	413	8.5	18.0	17.5	4.2	9.8	117

06054500 MISSOURI RIVER AT TOSTON, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)
OCT										
11...	20	K13	150	12	41	12	20	.7	3.6	140
NOV										
08...	K33	K13	150	7	39	12	21	.8	3.7	140
DEC										
13...	110	27	170	18	44	14	21	.7	4.3	150
JAN										
10...	49	K16	190	21	50	16	26	.8	4.9	170
FEB										
06...	62	K17	160	23	42	14	21	.7	3.8	140
MAR										
06...	49	39	160	23	44	13	23	.8	--	140
APR										
05...	K7	K11	150	1	39	13	28	1.0	4.1	150
MAY										
09...	78	34	110	9	26	8.9	15	.6	3.2	98
JUN										
06...	120	73	110	23	30	7.4	10	.4	2.6	82
JUL										
13...	K9	K21	150	6	37	13	17	.6	3.6	140
AUG										
02...	K8	K13	140	3	36	13	22	.8	4.2	140
28...	K9	K11	--	--	--	--	--	--	4.4	160

DATE	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)
OCT									
11...	42	9.5	.9	20	256	233	.32	3220	.01
NOV									
08...	45	10	1.1	24	231	240	.31	3310	.06
DEC									
13...	46	12	1.0	24	251	257	.34	2890	.33
JAN									
10...	53	16	1.1	30	305	299	.42	2080	.41
FEB									
06...	44	15	1.2	25	256	250	.35	2510	.33
MAR									
06...	44	16	1.1	25	250	--	.34	2610	.33
APR									
05...	42	15	1.5	30	260	265	.35	3400	.11
MAY									
09...	31	7.4	.7	20	176	173	.24	3820	.10
JUN									
06...	24	4.5	.4	15	151	143	.21	3350	.08
JUL									
13...	41	7.5	.6	17	222	221	.30	1500	.01
AUG									
02...	50	9.7	.9	23	225	243	.31	1060	.02
28...	48	11	.9	--	268	--	.36	2010	.05

06054500 MISSOURI RIVER AT TOSTON, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, KJEL-DAHL, TOTAL (MG/L AS N) (00625)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C) (00689)
OCT									
11...	.02	.52	.54	.15	.02	.00	2.7	--	--
NOV									
08...	.01	.33	.34	.36	.04	.01	3.0	--	--
DEC									
13...	.01	.28	.29	.21	.05	.03	--	2.0	.2
JAN									
10...	.03	.54	.57	.27	.06	.05	2.2	--	--
FEB									
06...	.05	.34	.39	.27	.04	.03	1.7	--	--
MAR									
06...	.06	.29	.35	.12	.05	.03	--	2.1	1.2
APR									
05...	.01	.26	.27	.18	.01	.02	2.5	--	--
MAY									
09...	.01	.47	.48	.47	.09	.02	6.3	--	--
JUN									
06...	.02	.44	.46	.26	.05	.02	--	4.8	--
JUL									
13...	.01	.17	.18	.15	.02	.02	5.9	--	--
AUG									
02...	.02	.67	.69	.64	.01	.01	3.1	--	--
28...	.06	.52	.58	.58	.04	.01	--	4.9	.3

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)
DEC									
13...	1130	25	34	100	0	1	0	10	0
MAR									
06...	1130	30	29	100	0	0	0	10	0
JUN									
06...	1100	11	9	100	0	0	1	10	0
AUG									
28...	1100	18	18	0	--	0	--	10	10

DATE	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO) (01037)	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)
DEC									
13...	1	1	4	1	380	30	6	0	20
MAR									
06...	0	0	5	4	840	10	7	0	60
JUN									
06...	1	0	9	1	1300	10	9	3	70
AUG									
28...	0	--	4	0	240	--	3	0	40

06054500 MISSOURI RIVER AT TOSTON, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOVERABLE (UG/L AS HG) (71900)	MERCURY DISSOLVED (UG/L AS HG) (71890)	SELENIUM, TOTAL (UG/L AS SE) (01147)	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	SILVER, TOTAL RECOVERABLE (UG/L AS AG) (01077)	SILVER, DISSOLVED (UG/L AS AG) (01075)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)	ZINC, DISSOLVED (UG/L AS ZN) (01090)
DEC 13...	30	.0	.0	0	1	0	0	10	10
MAR 06...	10	.0	.0	1	1	0	0	20	10
JUN 06...	10	.1	.0	1	0	0	0	20	10
AUG 28...	--	.1	.0	0	0	0	0	0	--

PESTICIDE ANALYSES, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	PCB, TOTAL (UG/L) (39516)	PCB, TOTAL IN BOTTOM MATERIAL (UG/KG) (39519)	ALDRIN, TOTAL (UG/L) (39330)	ALDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG) (39333)	CHLORDANE, TOTAL (UG/L) (39350)	CHLORDANE, TOTAL IN BOTTOM MATERIAL (UG/KG) (39351)	DDD, TOTAL (UG/L) (39360)	DDD, TOTAL IN BOTTOM MATERIAL (UG/KG) (39363)	DDE, TOTAL (UG/L) (39365)	DDE, TOTAL IN BOTTOM MATERIAL (UG/KG) (39368)
NOV 08...	1100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FEB 06...	1200	ND	--	ND	--	ND	--	ND	--	ND	--
MAY 09...	1100	ND	--	ND	--	ND	--	ND	--	ND	--
AUG 02...	1030	ND	--	ND	--	ND	--	ND	--	ND	--

DATE	DDT, TOTAL (UG/L) (39370)	DDT, TOTAL IN BOTTOM MATERIAL (UG/KG) (39373)	DIAZINON, TOTAL (UG/L) (39570)	DIAZINON, TOTAL IN BOTTOM MATERIAL (UG/KG) (39571)	DIELDRIN TOTAL (UG/L) (39380)	DIELDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG) (39383)	ENDRIN, TOTAL (UG/L) (39390)	ENDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG) (39393)	ETHION, TOTAL (UG/L) (39398)	ETHION, TOTAL IN BOTTOM MATERIAL (UG/KG) (39399)
NOV 08...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FEB 06...	ND	--	ND	--	ND	--	ND	--	ND	--
MAY 09...	ND	--	ND	--	ND	--	ND	--	ND	--
AUG 02...	ND	--	ND	--	ND	--	ND	--	ND	--

DATE	HEPTACHLOR, TOTAL (UG/L) (39410)	HEPTACHLOR, TOTAL IN BOTTOM MATERIAL (UG/KG) (39413)	HEPTACHLOR EPOXIDE TOTAL (UG/L) (39420)	HEPTACHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG) (39423)	LINDANE TOTAL (UG/L) (39340)	LINDANE TOTAL IN BOTTOM MATERIAL (UG/KG) (39343)	MALATHION, TOTAL (UG/L) (39530)	MALATHION, TOTAL IN BOTTOM MATERIAL (UG/KG) (39531)	METHOXYCHLOR, TOTAL (UG/L) (39480)	METHOXYCHLOR, TOT. IN BOTTOM MATL. (UG/KG) (39481)
NOV 08...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FEB 06...	ND	--	ND	--	ND	--	ND	--	ND	--
MAY 09...	ND	--	ND	--	ND	--	ND	--	ND	--
AUG 02...	ND	--	ND	--	ND	--	ND	--	ND	--

06054500 MISSOURI RIVER AT TOSTON, MT--Continued

PESTICIDE ANALYSES, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	METHYL PARA- THION, TOTAL (UG/L) (39600)	METHYL PARA- THION, TOT. IN BOTTOM MATL. (UG/KG) (39601)	METHYL TRI- THION, TOTAL (UG/L) (39790)	METHYL TRI- THION, TOT. IN BOTTOM MATL. (UG/KG) (39791)	PARA- THION, TOTAL (UG/L) (39540)	PARA- THION, TOTAL IN BOT- TOM MA- TERIAL (UG/KG) (39541)	TOX- APHENE, TOTAL (UG/L) (39400)	TOXA- PHENE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG) (39403)	TOTAL TRI- THION (UG/L) (39786)	TRI- THION, TOTAL IN BOT- TOM MA- TERIAL (UG/KG) (39787)
NOV 08...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FEB 06...	ND	--	ND	--	ND	--	ND	--	ND	--
MAY 09...	ND	--	ND	--	ND	--	ND	--	ND	--
AUG 02...	ND	--	ND	--	ND	--	ND	--	ND	--

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	389	391	393	477	443	403	411	282	220	279	379	416
2	388	387	389	469	443	408	412	269	216	295	376	410
3	391	387	397	476	439	408	414	258	235	301	381	415
4	391	384	396	474	437	417	418	256	239	306	379	413
5	391	386	393	462	428	417	412	252	236	323	380	412
6	390	383	397	462	428	412	413	251	225	328	380	411
7	390	384	413	472	424	413	406	252	210	341	381	410
8	389	381	413	470	422	373	411	244	219	354	375	411
9	392	382	442	476	423	372	396	247	230	361	371	411
10	391	378	443	474	428	397	387	255	233	357	374	411
11	393	379	443	462	416	396	388	262	259	362	371	410
12	390	418	442	461	412	398	385	271	252	361	372	410
13	386	413	426	446	408	402	392	276	241	367	373	409
14	367	404	427	447	403	392	393	280	244	372	380	408
15	384	404	424	446	382	397	392	281	221	366	385	400
16	390	408	423	448	428	399	394	263	232	369	389	410
17	386	408	427	440	429	402	390	227	231	372	392	409
18	390	402	433	435	422	396	377	226	247	367	398	408
19	387	402	434	446	422	396	352	222	248	371	403	411
20	393	397	416	434	409	413	348	212	252	364	411	412
21	399	397	418	446	412	415	350	198	272	368	400	413
22	399	403	422	443	407	418	363	196	263	361	404	401
23	398	402	420	434	408	416	366	189	260	364	402	400
24	397	404	424	433	417	408	373	187	260	368	407	399
25	402	404	424	439	417	407	377	177	269	365	405	400
26	401	399	418	441	414	406	390	178	270	369	404	400
27	402	399	418	435	414	408	398	166	269	372	410	391
28	402	386	420	437	400	410	387	159	274	369	412	392
29	400	386	416	435	---	413	367	163	273	375	419	392
30	400	387	459	434	---	412	339	160	269	376	417	391
31	400	---	453	434	---	412	---	176	---	372	417	---
MEAN	393	395	421	451	419	404	387	227	245	354	392	406

WTR YR 1979 MEAN 374 MAX 477 MIN 159

06054500 MISSOURI RIVER AT TOSTON, MT--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	13.0	12.5	13.0	4.0	3.5	4.0	.5	.5	.5	.0	.0	.0
2	12.5	11.5	12.0	5.0	4.5	5.0	.5	.5	.5	.0	.0	.0
3	11.5	10.5	10.5	6.0	5.0	6.0	.5	.5	.5	.0	.0	.0
4	11.0	10.0	10.5	7.0	6.0	7.0	.5	.5	.5	.0	.0	.0
5	11.0	10.5	11.0	6.5	5.0	5.5	.5	.5	.5	.0	.0	.0
6	11.0	10.5	10.5	5.0	4.5	4.5	.5	.5	.5	.0	.0	.0
7	11.0	10.5	10.5	5.0	4.5	5.0	.5	.5	.5	.0	.0	.0
8	11.5	11.0	11.0	6.0	5.0	5.5	.5	.5	.5	.0	.0	.0
9	11.5	11.0	11.5	6.0	2.0	4.5	.5	.5	.0	.0	.0	.0
10	11.0	10.5	11.0	2.0	.5	.5	.5	.5	.0	.0	.0	.0
11	11.5	10.5	11.0	.5	.5	.5	.5	.5	.0	.0	.0	.0
12	11.0	9.5	10.5	.5	.5	.5	.5	.5	.0	.0	.0	.0
13	9.5	8.5	9.0	.5	.5	.5	.0	.0	.0	.0	.0	.0
14	9.0	8.5	8.5	.5	.5	.5	.0	.0	.0	.0	.0	.0
15	9.5	9.0	9.5	.5	.5	.5	.0	.0	.0	.0	.0	.0
16	10.0	9.5	9.5	.5	.5	.5	.0	.0	.0	.0	.0	.0
17	11.0	9.5	10.5	.5	.5	.5	.0	.0	.0	.0	.0	.0
18	10.5	10.5	10.5	.5	.5	.5	.0	.0	.0	.0	.0	.0
19	10.5	9.5	10.0	.5	.5	.5	.0	.0	.0	.0	.0	.0
20	10.5	9.5	10.0	.5	.5	.5	.0	.0	.0	.0	.0	.0
21	10.0	9.0	9.5	.5	.5	.5	.0	.0	.0	.0	.0	.0
22	9.0	8.0	8.5	.5	.5	.5	.0	.0	.0	.0	.0	.0
23	8.5	8.0	8.5	.5	.5	.5	.0	.0	.0	.0	.0	.0
24	8.5	7.5	8.0	.5	.5	.5	.5	.0	.0	.0	.0	.0
25	7.5	6.5	7.0	.5	.5	.5	.0	.0	.0	.0	.0	.0
26	7.0	6.5	6.5	.5	.5	.5	.0	.0	.0	.0	.0	.0
27	7.0	6.5	7.0	.5	.5	.5	.0	.0	.0	.0	.0	.0
28	7.5	6.5	7.0	.5	.5	.5	.0	.0	.0	.0	.0	.0
29	7.5	6.0	7.0	.5	.5	.5	.0	.0	.0	.0	.0	.0
30	6.0	4.5	5.0	.5	.5	.5	.0	.0	.0	.0	.0	.0
31	4.5	3.5	4.0	---	---	---	.0	.0	.0	.0	.0	.0
MONTH	13.0	3.5	9.5	7.0	.5	2.0	.5	.0	.0	.0	.0	.0

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	.0	.0	.0	.0	.0	.0	4.5	4.0	4.0	11.5	10.0	10.5
2	.0	.0	.0	.5	.0	.0	4.0	3.5	4.0	11.0	9.0	10.0
3	.0	.0	.0	.5	.0	.0	4.0	3.5	4.0	12.0	9.5	10.5
4	.0	.0	.0	.5	.0	.0	4.0	3.5	4.0	12.0	10.5	11.0
5	.0	.0	.0	.5	.0	.0	6.5	4.0	5.5	11.0	10.5	10.5
6	.0	.0	.0	.5	.0	.0	8.0	7.0	7.5	10.5	9.0	9.5
7	.0	.0	.0	.5	.0	.0	8.0	7.5	8.0	10.5	8.5	9.0
8	.0	.0	.0	.5	.0	.0	8.0	6.5	7.5	10.5	8.0	9.0
9	.0	.0	.0	.5	.0	.0	8.0	7.0	7.5	8.0	.0	7.5
10	.0	.0	.0	.5	.0	.0	6.5	5.5	6.0	9.5	7.0	8.0
11	.0	.0	.0	.5	.0	.0	6.0	5.5	5.5	11.0	9.0	10.0
12	.0	.0	.0	.5	.0	.0	6.5	5.0	6.0	10.5	9.5	10.0
13	.5	.0	.0	.5	.0	.0	7.0	6.5	6.5	12.0	10.5	11.0
14	.0	.0	.0	.5	.0	.0	7.0	5.5	6.0	12.5	11.0	11.5
15	.0	.0	.0	1.5	.0	.5	8.5	7.0	8.0	14.0	12.0	13.0
16	.0	.0	.0	4.0	1.5	3.0	8.5	8.0	8.5	14.5	13.5	14.0
17	.5	.0	.0	4.5	4.0	4.0	10.0	8.5	9.0	13.5	12.5	13.0
18	.5	.0	.0	4.5	4.0	4.0	9.5	7.5	8.5	14.0	12.5	13.0
19	.5	.0	.0	4.5	4.0	4.0	7.5	6.0	6.5	14.0	12.0	13.5
20	.5	.0	.0	4.5	3.5	4.0	7.0	6.0	6.5	14.5	13.0	13.5
21	.5	.0	.0	5.0	4.5	4.5	8.5	6.5	7.5	15.5	13.5	14.5
22	.0	.0	.0	5.5	5.0	5.0	9.0	8.0	8.5	16.0	14.0	15.0
23	.0	.0	.0	4.5	4.0	4.5	8.5	6.5	8.0	17.0	15.0	16.0
24	.5	.0	.0	5.5	4.5	5.0	7.0	5.5	6.0	17.0	15.0	16.0
25	.5	.0	.0	5.5	3.5	5.0	7.5	6.5	7.0	16.0	13.5	14.5
26	.5	.0	.0	3.5	3.0	3.0	8.5	7.5	8.0	17.0	15.0	16.0
27	.5	.0	.0	3.0	1.5	2.5	11.0	8.5	9.5	17.0	15.0	16.0
28	.0	.0	.0	3.5	1.0	2.0	12.0	10.0	11.0	15.0	11.5	13.0
29	---	---	---	4.5	3.5	4.0	12.0	11.0	11.5	11.5	9.5	10.0
30	---	---	---	5.0	4.0	4.5	11.5	11.0	11.0	11.0	9.0	9.5
31	---	---	---	5.0	4.5	4.5	---	---	---	12.0	10.5	11.0
MONTH	.5	.0	.0	5.5	.0	2.0	12.0	3.5	7.0	17.0	.0	12.0

06054500 MISSOURI RIVER AT TOSTON, MT--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	13.0	11.0	12.0	19.5	18.0	18.5	24.5	21.0	22.5	16.5	15.5	16.0
2	14.0	13.0	13.5	18.0	16.5	17.0	24.0	21.0	22.5	19.0	16.5	17.5
3	15.5	13.5	14.5	19.0	17.5	18.0	23.5	20.5	22.0	19.5	18.0	18.5
4	16.5	15.0	16.0	20.5	19.0	20.0	24.0	20.5	21.5	18.5	17.0	17.5
5	16.5	15.0	16.0	20.5	19.5	20.0	24.5	20.5	22.0	17.5	16.0	16.5
6	15.0	13.0	13.5	21.5	20.5	21.0	24.0	20.5	22.0	18.5	16.5	17.5
7	12.5	11.5	12.0	21.0	19.5	20.0	23.5	20.0	21.5	19.5	17.5	18.5
8	13.0	11.5	12.0	21.5	20.5	20.5	22.5	20.0	21.0	20.0	18.5	19.0
9	15.0	12.5	13.5	22.0	20.5	21.0	22.0	18.0	20.0	19.5	17.5	18.5
10	16.5	15.0	15.5	22.5	21.5	22.0	23.5	18.5	20.5	17.5	15.5	17.0
11	17.5	16.5	17.0	22.0	20.5	21.0	24.0	20.0	21.5	17.0	15.0	15.5
12	18.0	16.5	17.0	21.0	19.5	20.5	21.0	19.0	20.0	15.5	14.0	15.0
13	18.0	17.5	18.0	21.5	19.5	20.5	19.0	17.0	18.5	15.5	14.5	15.0
14	17.5	15.5	16.5	23.0	19.5	21.0	19.5	17.0	18.0	16.0	14.5	15.0
15	16.5	15.0	15.5	21.0	19.0	20.0	20.5	17.0	19.0	16.0	14.5	15.0
16	17.5	15.5	16.0	22.5	19.5	20.5	21.5	19.5	20.0	16.5	15.0	15.5
17	17.5	15.5	16.5	23.5	20.5	22.0	21.0	19.0	20.0	17.5	15.5	16.0
18	15.5	14.0	14.5	24.5	21.5	22.5	21.5	19.5	20.0	17.0	15.5	16.5
19	14.0	13.0	13.5	25.5	21.5	23.0	21.0	19.0	20.0	17.0	15.5	16.5
20	16.0	13.0	14.0	25.0	21.5	23.0	21.0	19.0	20.0	17.0	15.0	15.5
21	16.5	15.5	16.0	24.5	21.0	22.5	20.5	18.5	19.5	17.0	15.0	15.5
22	16.5	15.0	15.5	23.0	21.5	22.0	20.5	18.5	19.5	17.0	15.0	16.0
23	17.5	16.0	16.5	23.0	20.0	21.5	21.5	19.5	20.0	17.0	15.0	16.0
24	19.0	17.5	18.0	24.0	20.0	21.5	20.5	19.0	20.0	17.0	15.0	15.5
25	19.0	18.5	19.0	23.5	19.5	21.5	20.5	18.5	19.5	16.0	15.0	15.5
26	20.0	19.0	19.5	23.5	19.5	21.5	20.5	19.0	19.5	16.0	15.0	15.5
27	20.5	19.5	20.0	24.0	20.5	21.5	19.5	17.5	18.5	15.5	14.0	15.0
28	20.5	19.5	20.0	23.0	20.0	21.0	18.5	17.0	17.5	15.5	14.0	14.5
29	21.0	21.0	21.0	22.0	19.5	20.5	19.5	17.5	18.5	15.5	14.0	14.5
30	20.5	19.5	20.5	23.0	19.5	21.5	20.5	19.0	19.5	15.5	14.5	15.0
31	---	---	---	24.0	21.0	22.0	19.0	16.5	18.0	---	---	---
MONTH	21.0	11.0	16.0	25.5	16.5	21.0	24.5	16.5	20.0	20.0	14.0	16.0
YEAR	25.5	.0	9.0									

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPER-ATURE (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT						
11...	1125	10.5	5010	14	189	86
NOV						
08...	1100	5.5	5300	24	343	69
DEC						
13...	1130	.0	4260	19	219	--
JAN						
10...	1100	.0	2500	16	108	--
FEB						
06...	1200	.0	3600	50	486	32
MAR						
06...	1130	.5	3870	69	721	67
APR						
05...	1100	5.0	4840	26	340	73
MAY						
09...	1100	7.0	8040	74	1610	76
JUN						
06...	1100	14.0	8210	62	1370	61
JUL						
13...	1100	19.5	2500	6	54	94
AUG						
02...	1030	22.0	1770	10	48	92
20...	1100	17.5	2780	23	173	86

06054500 MISSOURI RIVER AT TOSTON, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	BAROMETRIC PRESSURE (MM OF HG) (00025)	WEATHER (WMO CODE NUMBER) (00041)
AUG									
28...	1100	413	8.5	18.0	17.5	9.8	117	662	0
28...	1200	--	--	--	18.0	10.2	123	--	--
28...	1300	414	8.5	24.0	18.0	10.3	124	662	0
28...	1400	--	--	28.0	18.0	10.1	123	657	1
28...	1500	413	8.6	28.0	18.0	10.1	123	656	1
28...	1600	418	8.6	26.5	18.0	10.0	122	656	1
28...	1700	--	--	--	18.0	9.5	116	--	--
28...	1800	--	--	--	17.5	9.4	114	--	--
28...	1900	418	8.5	22.0	17.0	9.0	106	655	1
28...	2000	--	--	--	16.5	8.5	101	--	--
28...	2100	420	8.5	15.5	16.5	8.4	100	655	1
28...	2200	--	--	--	16.5	8.4	100	--	--
28...	2300	--	--	--	16.5	8.4	100	--	--
28...	2400	--	--	--	16.5	8.4	100	--	--
29...	0100	--	--	--	17.0	8.4	100	--	--
29...	0200	--	--	--	17.0	8.3	99	--	--
29...	0300	--	--	--	17.0	8.2	98	--	--
29...	0400	--	--	--	17.0	8.2	98	--	--
29...	0500	--	--	--	17.0	8.2	98	--	--
29...	0600	413	8.7	10.0	17.0	8.2	98	658	0
29...	0700	412	8.5	9.5	17.0	8.3	99	658	0
29...	0800	411	8.6	10.5	17.0	8.4	100	658	0
29...	0900	--	--	--	17.0	9.1	108	--	--
29...	1000	417	8.7	17.0	17.5	9.6	115	659	0
29...	1100	415	8.7	19.5	18.0	10.0	112	658	0

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

PERIPHYTON

DATE	TIME	LENGTH OF EXPOSURE (DAYS) (00022)	PERIPHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M (00573)	PERIPHYTON BIOMASS ASH WEIGHT G/SQ M (00572)	CHLOR-A PERIPHYTON CHROMOGRAPHIC FLUOROM (MG/M2) (70957)	CHLOR-B PERIPHYTON CHROMOGRAPHIC FLUOROM (MG/M2) (70958)	BIOMASS CHLOROPHYLL RATIO PERIPHYTON (UNITS) (70950)
OCT							
11...	1125	27	--	--	26.2	6.00	--
NOV							
08...	1100	28	2.83	2.28	.950	.170	579
AUG							
02...	1030	20	20.7	17.0	9.60	3.96	385
28...	1100	26	63.8	59.1	33.7	3.85	139

06054500 MISSOURI RIVER AT TOSTON, MT--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

PHYTOPLANKTON

DATE	NOV 8,78	MAR 6,79	MAY 9,79
TIME	1100	1130	1100
TOTAL CELLS/ML	3200	230	1900
DIVERSITY: DIVISION	0.3	1.4	0.8
.CLASS	0.3	1.4	0.8
..ORDER	0.8	1.9	1.4
...FAMILY	2.8	2.2	3.2
....GENUS	3.4	0.0	3.5

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...MICRACTINIACEAE						
....MICRACTINIUM	--	-	--	-	42	2
..VOLVOCALES						
...CHLAMYDOMONADACEAE	--	-	14	6	--	-
..ZYGNEMATALES						
...DESMIDIACEAE						
....COSMARIUM	--	-	14	6	--	-
CHRYSOPHYTA						
.BACILLARIOPHYCEAE						
..CENTRALES						
...COSCINODISCACEAE						
....CYCLOTELLA	320	10	29	13	290#	15
....MELOSIRA	--	-	--	-	28	1
..PENNALES						
...ACHNANTHACEAE						
....ACHNANTHES	140	4	--	-	28	1
....COCCONEIS	120	4	--	-	56	3
....RHOICOSPHENIA	120	4	--	-	--	-
...CYMBELLACEAE						
....AMPHORA	120	4	--	-	--	-
....CYMBELLA	370	12	29	13	170	9
....EPITHEMIA	200	6	--	-	14	1
...DIATOMACEAE						
....DIATOMA	890#	28	--	-	110	6
...FRAGILARIACEAE						
....FRAGILARIA	--	-	--	-	190	10
....SYNEDRA	120	4	--	-	70	4
...GOMPHONEMATACEAE						
....GOMPHONEIS	170	5	--	-	--	-
....GOMPHONEMA	140	4	--	-	140	7
...NAVICULACEAE						
....NAVICULA	260	8	14	6	320#	17
...NITZSCHIACEAE						
....NITZSCHIA	29	1	--	-	70	4
...SURIRELLACEAE						
....SURIRELLA	--	-	14	6	84	4
...TABELLARIACEAE						
....TABELLARIA	29	1	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..CHROOCOCCALES						
...CHROOCOCCACEAE						
....ANACYSTIS	200	6	--	-	--	-
..HORMOGONALES						
...OSCILLATORIACEAE						
....LYNGBYA	--	-	--	-	310#	16
....OSCILLATORIA	--	-	110#	50	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

MISSOURI RIVER MAIN STEM

06054500 MISSOURI RIVER AT TOSTON, MT -Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

PHYTOPLANKTON

DATE	JUN 6,79		JUL 13,79		AUG 2,79		AUG 28,79	
TIME	1100		1100		1030		1100	
TOTAL CELLS/ML	1000		3100		2900		1600	
DIVERSITY: DIVISION	0.7		0.7		1.7		1.5	
.CLASS	0.7		0.7		1.7		1.6	
..ORDER	1.4		1.6		2.2		2.2	
...FAMILY	3.4		2.8		2.6		2.5	
....GENUS	3.6		2.9		3.1		2.9	
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)								
.CHLOROPHYCEAE								
..CHLOROCOCCALES								
...CHLOROCOCCACEAE								
....CHLOROCOCCUM	--	-	--	-	67	2	--	-
...MICRACTINIACEAE								
....MICRACTINIUM	--	-	92	3	--	-	--	-
...OOCYSTACEAE								
....ANKISTRODESMUS	--	-	46	1	130	5	100	5
....OOCYSTIS	--	-	--	-	130	5	--	-
....WESTELLA	--	-	--	-	67	2	--	-
...SCENEDESMACEAE								
....SCENEDESMUS	51	5	370	12	170	6	370#	20
..VOLVOCALES								
...CHLAMYDOMONADACEAE								
....CHLAMYDOMONAS	13	1	46	1	200	7	--	-
CHRYSOPHYTA								
.BACILLARIOPHYCEAE								
..CENTRALES								
...COSCINODISCACEAE								
....CYCLOTELLA	140	14	1200#	37	700#	24	290#	16
....MELOSIRA	13	1	--	-	33	1	400#	22
....STEPHANODISCUS	--	-	--	-	280	10	--	-
..PENNALES								
...ACHNANTHACEAE								
....COCCONEIS	51	5	46	1	33	1	--	-
....RHOICOSPHENIA	--	-	23	1	--	-	--	-
...CYMBELLACEAE								
....CYMBELLA	100	10	23	1	17	1	--	-
....EPITHEMIA	--	-	92	3	--	-	--	-
...DIATOMACEAE								
....DIATOMA	64	6	110	4	--	-	--	-
...FRAGILARIACEAE								
....FRAGILARIA	100	10	--	-	--	-	--	-
....SYNEDRA	13	1	92	3	--	-	14	1
...GOMPHONEMATACEAE								
....GOMPHONEMA	100	10	140	4	--	-	--	-
...NAVICULACEAE								
....NAVICULA	100	10	250	8	17	1	72	4
...NITZSCHIACEAE								
....NITZSCHIA	140	14	620#	20	180	6	110	6
...SURIRELLACEAE								
....SURIRELLA	39	4	23	1	--	-	--	-
.CHRYSOPHYCEAE								
..CHRYSOMONADALES								
...MALLOMONADACEAE								
....MALLOMONAS	--	-	--	-	--	-	14	1
CRYPTOPHYTA (CRYPTOMONADS)								
.CRYPTOPHYCEAE								
..CRYPTOMONADALES								
...CRYPTOCHRYSIDACEAE								
....CHROOMONAS	--	-	--	-	17	1	--	-
...CRYPTOMONADACEAE								
....CRYPTOMONAS	--	-	--	-	50	2	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)								
.CYANOPHYCEAE								
..CHROOCOCCALES								
...CHROOCOCCACEAE								
....ANACYSTIS	--	-	--	-	800#	28	320#	17
..HORMOGONALES								
...NOSTOCACEAE								
....ANABAENA	51	5	--	-	--	-	57	3
....APHANIZOMENON	--	-	--	-	--	-	100	5
PYRRHOPHYTA (FIRE ALGAE)								
.DINOPHYCEAE								
..PERIDINIALES								
...GLENODINIACEAE								
....GLENODINIUM	13	1	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

06058500 CANYON FERRY RESERVOIR NEAR HELENA, MT

LOCATION.--Lat 46°38'57", long 111°43'39", in SE¼SE¼ sec.4, T.10 N., R.1 W., Lewis and Clark County, Hydrologic Unit 10030101, in block 17 of Canyon Ferry Dam, 15 mi (24 km) east of Helena, and at mile 2,252.8 (3,624.8 km).

DRAINAGE AREA.--15,904 mi² (41,191 km²).

PERIOD OF RECORD.--April 1953 to current year (monthend contents only). Records of monthend contents in Lake Sewell, submerged by present reservoir Apr. 8, 1953, available January 1936 to March 1953. Scattered daily elevations and contents for April to July 1953, published in WSP 1320-B. Daily elevations and contents for May to June 1964, published in WSP 1840-B. Daily elevations and contents on file in Helena district office.

REVISED RECORDS.--WSP 1559: Drainage area.

GAGE.--Water-stage recorder in powerhouse control room. Datum of gage is referenced to National Geodetic Vertical Datum of 1929 (levels by Water and Power Resources Service).

REMARKS.--Reservoir is formed by concrete dam; construction began in 1949, completed in 1953. Storage began in March 1953. Usable capacity, 2,043,000 acre-ft (2.52 km³) between elevation 3,650.00 ft (1,112.520 m), invert of outlet works, and 3,800.00 ft (1,158.240 m), controlled spillway elevation. Dead storage, 8,000 acre-ft (9.86 hm³) below elevation 3,650.00 ft (1,112.520 m). Minimum operating level, 426,500 acre-ft (526 hm³) at elevation 3,728.00 ft (1,136.294 m) for on-site power generation. Figures given herein represent usable contents. Water is used for power production, flood control, irrigation, recreation, and supplemental water supply for city of Helena.

COOPERATION.--Elevations and capacity table furnished by Water and Power Resources Service.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily contents, 2,043,000 acre-ft (2.52 km³) July 15-29, 31, 1955, July 2, 5, 6, 8, 1956, July 16, 17, 1962, June 23, 1964, elevation, 3,800.0 ft (1.158.24 m); minimum since first filling, 1,017,000 acre-ft (1.25 km³) Apr. 11, 1967, elevation, 3,764.70 ft (1.147.481 m).

EXTREMES FOR CURRENT YEAR.--Maximum daily contents at 2400, 1,913,000 acre-ft (2.36 km³) July 5, elevation, 3,796.24 ft (1,157.094 m); minimum, 1,381,000 acre-ft (1.70 km³) Mar. 7, elevation, 3,779.25 ft (1,151.915 m).

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	3,791.11	1,742,000	-
Oct. 31	3,792.68	1,793,000	+ 51,000
Nov. 30	3,791.41	1,751,000	- 42,000
Dec. 31	3,787.84	1,637,000	-114,000
CAL YR 1978			-116,000
Jan. 31	3,782.11	1,463,000	-174,000
Feb. 28	3,779.46	1,387,000	- 76,000
Mar. 31	3,780.04	1,403,000	+ 16,000
Apr. 30	3,782.45	1,473,000	+ 70,000
May 31	3,790.84	1,733,000	+260,000
June 30	3,769.00	1,904,000	+171,000
July 31	3,793.45	1,819,000	- 85,000
Aug. 31	3,790.37	1,718,000	-101,000
Sept. 30	3,788.36	1,653,000	- 65,000
WTR YR 1979			- 89,000

06058502 MISSOURI RIVER BELOW CANYON FERRY DAM, NEAR HELENA, MT

LOCATION.--Lat 46°38'58", long 111°43'39", in NW¼SE¼SE¼ sec.4, T.10 N., R.1 W., Lewis and Clark County, Hydrologic Unit 10030101, at penstock of number 1 generator at Canyon Ferry Dam, 15 mi (24 km) east of Helena, and at mile 2,242.8 (3,608.7 km).

DRAINAGE AREA.--15,904 mi² (41,191 km²).

PERIOD OF RECORD.--Water years 1968 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1967 to current year.
WATER TEMPERATURES: October 1967 to current year.

REMARKS.--Flow completely regulated. Many diversions for irrigation upstream from station. Prior to October 1971 samples and water temperatures were obtained about 200 ft (61 m) downstream from dam in tailrace pond.

COOPERATION.--Records of discharge furnished by Canyon Ferry Project Office, Bureau of Reclamation, Helena, Mt.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 442 micromhos Mar. 31, Apr. 13, 1978; minimum daily, 241 micromhos Dec. 16, 1968.
WATER TEMPERATURES: Maximum daily, 20.0°C Aug. 27, 1969; minimum daily (water years 1968-71), 0.0°C on several days during winter periods, (water years 1972-79) 1.5°C Jan. 3, 1972.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 424 micromhos May 6, 9; minimum daily observed, 247 micromhos Dec. 15.
WATER TEMPERATURES: Maximum daily, 17.0°C on several days during September; minimum daily, 2.5°C on many days during January to March.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE (DEG C) (00010)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM ADSORPTION RATIO (00931)
OCT											
11...	0755	3580	316	7.8	13.5	140	20	38	11	16	.6
NOV											
08...	0815	5500	331	7.7	11.0	140	20	36	11	16	.7
DEC											
13...	0800	5510	356	8.0	3.0	130	33	35	11	16	.6
JAN											
10...	0805	5870	363	7.8	2.0	140	5	36	11	18	.7
FEB											
06...	0900	6210	381	7.9	2.0	140	4	38	12	20	.7
MAR											
06...	0815	5970	408	7.7	2.5	160	12	45	12	20	.7
APR											
05...	0800	5820	413	8.0	2.5	150	12	41	12	19	.7
MAY											
09...	0755	5920	407	7.9	6.0	160	23	44	13	21	.7
JUN											
06...	0745	6280	383	7.8	7.5	150	22	41	12	23	.8
JUL											
13...	0745	2440	369	7.8	11.0	150	0	34	11	20	.8
AUG											
02...	0745	3440	360	8.1	12.0	140	18	37	11	20	.7
28...	0800	5070	351	8.1	14.0	140	19	36	12	20	.7

06058502 MISSOURI RIVER BELOW CANYON FERRY DAM, NEAR HELENA, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)
OCT 11...	3.4	120	33	7.1	.8	15	198	.27	1910	.65	.03
NOV 08...	3.3	120	35	8.1	.6	18	203	.28	3020	.17	.01
DEC 13...	3.5	100	38	8.3	.5	17	190	.26	2830	.18	.04
JAN 10...	3.5	130	36	9.2	.7	18	211	.29	3340	.21	.04
FEB 06...	3.3	140	39	11	.8	21	230	.31	3860	.20	.05
MAR 06...	3.4	150	41	14	1.0	21	249	.34	4010	.30	.04
APR 05...	3.6	140	44	12	1.0	21	239	.33	3760	.22	.03
MAY 09...	4.1	140	45	10	1.0	22	245	.33	3920	.20	.02
JUN 06...	3.9	130	40	15	1.1	21	236	.32	4000	.16	.02
JUL 13...	3.9	130	38	10	1.0	21	218	.30	1440	.21	.60
AUG 02...	3.9	120	41	9.4	.9	22	218	.30	2020	.23	.05
28...	3.3	120	39	9.9	.9	20	214	.29	2930	.26	.44

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	351	328	---	355	376	396	402	421	383	371	351	340
2	358	328	338	353	380	392	402	421	380	375	351	340
3	348	329	---	357	385	392	403	420	381	372	356	341
4	350	331	342	358	388	402	400	421	382	371	353	341
5	354	331	328	359	383	401	400	422	379	370	349	341
6	350	330	338	361	387	401	404	424	381	360	350	342
7	342	332	329	358	385	411	404	421	384	362	351	342
8	340	332	284	358	388	405	400	421	376	361	348	345
9	340	329	343	359	398	406	399	424	368	362	350	350
10	343	329	343	361	383	404	401	422	370	361	338	347
11	350	328	262	363	382	398	402	423	372	357	343	345
12	352	328	263	362	388	408	402	422	371	352	337	343
13	347	329	344	362	392	398	401	420	372	358	332	341
14	343	331	---	363	387	406	402	420	375	362	342	340
15	342	330	247	362	400	405	399	418	376	360	347	338
16	341	338	328	364	388	401	399	420	370	361	341	339
17	342	338	328	367	387	404	403	420	378	360	337	340
18	340	338	342	367	383	400	406	419	368	361	340	341
19	338	338	264	373	382	407	409	420	366	358	339	342
20	338	338	329	367	396	402	405	416	371	357	337	342
21	339	341	347	372	392	400	405	414	369	351	336	342
22	339	335	347	372	396	398	408	414	374	360	338	341
23	338	333	338	369	387	400	412	413	377	353	341	341
24	340	330	348	373	386	395	406	411	375	357	339	340
25	341	329	347	372	397	396	405	411	379	355	335	341
26	341	330	346	372	393	398	408	411	370	357	339	343
27	339	330	345	377	400	400	403	411	369	351	337	347
28	341	332	335	377	398	403	407	---	371	358	339	348
29	340	334	348	374	---	402	405	408	377	350	340	349
30	341	334	352	373	---	403	404	409	371	356	339	348
31	342	---	342	373	---	402	---	408	---	348	342	---
MEAN	344	332	327	366	389	401	404	418	375	360	342	343

WTR YR 1979 MEAN 367 MAX 424 MIN 247

06058502 MISSOURI RIVER BELOW CANYON FERRY DAM, NEAR HELENA, MT--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14.0	12.0	5.5	3.0	2.5	2.5	3.5	5.5	8.5	10.5	12.0	15.0
2	14.5	12.0	5.5	2.5	2.5	2.5	3.0	5.5	9.0	10.5	12.5	15.0
3	14.0	12.0	5.5	2.5	2.5	2.5	3.0	5.5	9.0	10.5	12.5	15.0
4	14.0	11.5	5.5	2.5	2.5	2.5	3.5	5.5	8.5	10.5	12.5	15.0
5	14.0	11.5	5.0	2.5	2.5	2.5	3.5	5.5	8.5	11.0	13.0	15.0
6	14.0	11.5	5.0	2.5	2.5	2.5	3.5	5.5	8.5	11.0	13.0	15.0
7	14.0	11.5	4.5	2.5	2.5	2.5	3.5	6.0	8.5	11.0	13.5	15.0
8	14.0	11.5	4.5	2.5	2.5	2.5	3.5	6.5	9.5	11.0	13.5	15.0
9	14.0	11.0	4.5	2.5	2.5	2.5	3.5	6.0	10.0	11.0	13.5	15.0
10	14.5	11.0	4.5	2.5	2.5	2.5	3.5	6.0	10.0	11.0	14.0	15.0
11	13.5	11.0	3.5	2.5	2.5	2.5	3.5	6.0	10.0	11.0	14.0	17.0
12	13.5	10.0	3.5	2.5	2.5	2.5	3.5	6.0	9.5	11.0	13.5	16.0
13	13.5	10.0	3.0	2.5	2.5	2.5	3.5	6.5	9.5	11.5	13.5	16.0
14	14.0	9.0	3.0	2.5	2.5	3.0	3.5	6.5	9.5	11.5	14.0	16.0
15	14.0	9.0	3.5	2.5	2.5	3.0	3.5	6.5	10.0	12.0	14.0	16.0
16	14.0	9.0	3.0	3.0	2.5	3.0	3.5	6.5	10.0	12.0	14.0	16.0
17	14.0	9.0	3.0	3.0	2.5	3.0	4.5	6.5	10.0	12.0	14.0	16.0
18	14.0	8.5	3.0	3.0	2.5	3.0	4.5	6.5	10.0	12.0	14.0	16.5
19	14.0	8.0	3.5	3.0	2.5	3.0	4.5	6.5	10.5	12.5	14.0	16.0
20	13.5	8.0	3.5	3.0	2.5	3.0	4.5	7.0	10.5	12.5	14.0	17.0
21	13.5	7.5	3.5	3.0	2.5	3.0	5.0	7.0	10.5	13.0	14.5	17.0
22	13.5	7.5	3.0	3.0	2.5	3.0	5.0	7.0	10.5	13.0	14.5	17.0
23	13.5	7.5	3.0	3.0	2.5	3.0	5.0	7.5	10.5	13.0	15.0	16.5
24	13.0	7.0	3.5	3.0	2.5	3.0	5.0	7.5	10.0	12.5	14.5	17.0
25	13.0	7.0	3.0	3.0	2.5	3.0	5.0	8.0	10.0	12.5	15.0	17.0
26	13.0	6.5	3.0	3.0	2.5	3.0	5.0	8.0	11.0	12.5	15.0	16.0
27	13.0	6.5	3.0	3.0	2.5	3.0	5.0	7.5	11.0	12.5	15.5	16.5
28	13.0	6.0	3.0	3.0	2.5	3.5	5.0	8.0	11.0	12.5	15.0	16.5
29	13.0	6.0	3.0	3.0	---	3.5	5.5	8.0	11.0	12.5	15.0	16.0
30	12.5	6.0	3.0	2.5	---	3.5	5.5	8.0	11.0	12.5	15.0	16.0
31	12.0	---	3.0	2.5	---	3.5	---	8.0	---	13.0	15.0	---
MEAN	13.5	9.0	4.0	2.5	2.5	3.0	4.0	6.5	10.0	12.0	14.0	16.0

WTR YR 1979 MEAN 8.0 MAX 17.0 MIN 2.5

06061500 PRICKLY PEAR CREEK NEAR CLANCY, MT

LOCATION.--Lat 46°31'05", long 111°56'45", in NE¼SW¼ sec.23, T.9 N., R.3 W., Jefferson County, Hydrologic Unit 10030101, on right bank, 3.5 mi (5.6 km) downstream from Lump Gulch Creek, 4 mi (6 km) northeast of Clancy, and 7 mi (11 km) southeast of Helena.

DRAINAGE AREA.--192 mi² (497 km²).

PERIOD OF RECORD.--July 1908 to September 1916, July 1921 to September 1933, October 1945 to October 1953, October 1954 to September 1969, October 1978 to September 1979. October 1969 to September 1978 record collected by Montana Department of Natural Resources and Conservation. Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WSP 1086: 1946 (m). WSP 1309: 1925, 1927, 1931 (M), 1933, 1948 (M). WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 4,067.1 ft (1,239.65 m) National Geodetic Vertical Datum of 1929. Prior to July 12, 1910, staff gage at site 1.2 mi (1.9 km) upstream at different datum. July 12, 1910, to Sept. 30, 1916, and July 28, 1921, to Aug. 12, 1933, staff gage at site 2.2 mi (3.5 km) upstream at different datum.

REMARKS.--Records fair except those for winter period, which are poor. Diversions for irrigation of about 700 acres (2.83 km²) above station. Several observations of water temperature were made during the year and are available in files of Helena district office.

COOPERATION.--Records were collected by the Montana Department of Natural Resources and Conservation under general supervision of the Geological Survey.

AVERAGE DISCHARGE.--44 years (water years, 1909-16, 1922-33, 1946-53, 1955-69, 1979), 48.3 ft³/s (1.368 m³/s) 34,990 acre-ft/yr (43.1 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 900 ft³/s (25.5 m³/s) about June 9, 1927 (estimated on basis of hydrographic comparison); minimum, 0.5 ft³/s (0.014 m³/s) Jan. 26, 1958, gage height, 0.40 ft (0.122 m), backwater from ice.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge, 1,200 ft³/s (34.0 m³/s) June 19, 1975, gage height, 6.56 ft (2.000 m).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 140 ft³/s (3.96 m³/s) and maximums (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Nov. 22	1400	ice	jam	*3.55	1.082	June 19	1000	192	5.44	2.68	0.817
May 24	0600	*204	5.78	2.78	0.847						

Minimum daily discharge, 18 ft³/s (0.51 m³/s) Feb. 15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	54	34	28	20	20	24	30	108	122	77	32	32
2	53	37	25	22	20	23	30	98	116	71	29	29
3	51	37	26	23	22	24	30	101	120	69	29	28
4	49	37	28	22	26	25	32	113	123	66	28	27
5	48	36	29	22	26	23	33	129	123	63	29	27
6	46	34	29	21	26	28	39	131	118	57	29	27
7	46	35	27	21	25	40	48	114	115	53	27	26
8	45	36	25	22	23	40	46	108	113	51	27	25
9	44	35	27	24	23	37	48	100	108	51	27	24
10	42	30	28	26	23	36	47	94	105	48	26	24
11	42	25	28	27	24	36	45	96	103	47	26	26
12	42	25	29	26	24	38	42	102	103	46	26	26
13	41	26	25	24	23	37	42	105	103	46	27	25
14	40	26	28	23	21	35	42	119	104	46	28	25
15	40	26	28	24	18	37	46	128	92	45	29	26
16	40	29	27	25	19	39	51	149	90	46	30	22
17	40	30	26	25	20	42	62	157	92	44	29	21
18	40	27	26	25	22	41	70	147	106	42	30	21
19	40	25	27	25	24	39	60	149	165	40	38	21
20	39	25	28	26	23	36	54	147	126	37	34	22
21	39	23	29	28	23	34	53	152	111	39	35	21
22	39	25	29	26	22	35	56	167	116	39	35	21
23	39	27	29	27	22	33	64	179	102	44	33	21
24	39	27	29	27	24	36	60	192	92	42	35	21
25	40	27	28	25	25	39	58	186	86	39	44	21
26	40	26	27	23	25	33	64	183	83	37	39	21
27	39	25	26	24	25	34	68	188	81	35	35	22
28	39	27	25	24	24	33	78	165	77	34	33	21
29	38	28	23	22	---	36	86	149	75	36	32	21
30	37	26	21	20	---	34	92	138	82	36	30	21
31	34	---	19	20	---	32	---	128	---	34	29	---
TOTAL	1305	876	829	739	642	1059	1576	4222	3154	1460	960	715
MEAN	42.1	29.2	26.7	23.8	22.9	34.2	52.5	136	105	47.1	31.0	23.8
MAX	54	37	29	28	26	42	92	192	165	77	44	32
MIN	34	23	19	20	18	23	30	94	75	34	26	21
AC-FT	2590	1740	1640	1470	1270	2100	3130	8370	6260	2900	1900	1420

WTR YR 1979 TOTAL 17537 MEAN 48.0 MAX 192 MIN 18 AC-FT 34780

06062500 TENMILE CREEK NEAR RIMINI, MT

LOCATION.--Lat 46°31'27", long 112°15'22", in NW¼SW¼NE¼ sec.20, T.9 N., R.5 W., Lewis and Clark County, Hydrologic Unit 10030101, Helena National Forest, on left bank at U.S. Forest Service Moose Creek picnic grounds, 500 ft (152 m) upstream from Moose Creek and 2.5 mi (4.0 km) north of Rimini.

DRAINAGE AREA.--32.7 mi² (84.7 km²).

PERIOD OF RECORD.--October 1914 to current year. Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WSP 1309: 1917, 1921, 1924-25. WSP 1509: 1915, 1916-17(M), 1920(M), 1927(M), 1928-30, 1947(M), 1948, 1950(M). WSP 1559: Drainage area. WSP 1709: 1959.

GAGE.--Water-stage recorder and concrete control since Oct. 20, 1937. Altitude of gage is 4,850 ft (1,478 m), from topographic map. Prior to Dec. 17, 1934, water-stage recorder at site 40 ft (12 m) downstream at different datum and different control.

REMARKS.--Records good except those for winter period, which are poor. Flow regulated by Chessman and Scott Reservoirs on tributaries above station, combined capacity, 2,340 acre-ft (2.89 hm³). Small diversions above station for water supply for city of Helena. Several observations of water temperature were made during the year and are available in files of Helena district office.

AVERAGE DISCHARGE.--65 years, 17.0 ft³/s (0.498 m³/s), 12,750 acre-ft/yr (15.7 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 995 ft³/s (28.2 m³/s) June 19, 1975, gage height, 4.89 ft (1.490 m); maximum gage height, 4.98 ft (1.518 m), May 27, 1917, site and datum then in use; no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 234 ft³/s (6.63 m³/s) May 26, gage height, 3.18 ft (0.969 m); minimum, 0.25 ft³/s (0.007 m³/s) Sept. 21, 22, 24, 25, gage height, 1.17 ft (0.357 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.3	4.0	1.4	1.0	.90	1.1	1.6	33	73	4.4	.83	4.5
2	2.3	3.7	1.1	1.0	1.0	1.0	1.5	31	71	3.5	.80	3.0
3	2.0	4.1	1.2	.99	1.1	1.1	1.5	34	71	2.8	.80	1.4
4	1.7	3.1	1.2	.98	1.1	1.1	1.7	44	70	2.6	.71	.66
5	1.5	.98	1.2	.98	1.1	1.1	2.2	57	68	3.4	.70	.54
6	1.3	1.0	1.1	.97	1.1	1.3	3.4	60	61	2.9	.62	.46
7	1.2	1.0	1.0	.92	1.1	1.5	4.8	51	58	3.2	.61	.41
8	1.1	1.7	.96	.91	1.0	1.6	2.6	44	52	2.7	.71	.39
9	1.0	2.4	.90	.91	1.1	1.5	3.6	38	43	2.1	.73	.37
10	1.0	.98	1.0	.92	1.1	1.4	3.2	33	37	1.8	.59	.39
11	1.0	.94	1.1	.97	1.2	1.4	2.9	32	33	1.8	.53	.38
12	1.1	.94	1.1	.97	1.2	1.5	2.5	34	29	1.6	.53	.38
13	.97	.90	1.0	.97	1.4	1.6	2.9	41	26	1.4	3.0	.37
14	1.4	.86	1.2	.97	1.3	1.6	2.6	54	24	1.3	9.8	.34
15	.97	.90	1.1	.97	1.2	1.6	3.2	75	24	1.3	10	.33
16	.97	.95	1.0	.98	1.1	1.7	4.3	104	20	1.2	7.6	.30
17	.85	1.0	.95	.97	1.1	2.2	8.6	113	19	1.1	2.0	.28
18	1.1	.98	.91	.97	1.2	1.8	12	115	19	1.1	1.4	.28
19	.98	.94	.90	.97	1.3	1.6	8.0	117	24	1.5	3.4	.28
20	.89	.90	1.0	.95	1.2	1.5	7.0	117	19	1.3	4.3	.27
21	.85	.90	1.1	.98	1.2	1.5	8.5	135	15	1.1	11	.26
22	.85	1.0	1.2	1.0	1.2	1.5	8.9	161	14	1.4	15	.26
23	.78	1.4	1.1	1.0	1.1	1.4	8.9	173	12	2.1	2.8	.28
24	.78	1.3	1.1	1.0	1.2	1.9	8.0	198	9.3	1.1	1.4	.25
25	.81	1.2	1.1	.99	1.2	2.6	7.8	188	9.3	1.0	1.2	.26
26	.86	1.2	1.0	.96	1.1	4.4	9.2	192	9.5	.99	1.0	.37
27	.94	1.1	1.0	.97	1.1	3.3	13	190	8.5	1.0	1.3	.41
28	.85	1.2	1.0	.97	1.1	3.8	19	151	7.0	1.3	.75	.41
29	.85	1.5	.86	.94	---	2.5	23	119	5.6	2.3	.65	.46
30	.71	2.0	.81	.91	---	1.8	29	97	5.8	1.1	.58	.72
31	.79	---	.90	.88	---	1.7	---	83	---	.92	1.5	---
TOTAL	34.70	45.07	32.49	29.87	32.00	55.6	215.4	2914	937.0	57.31	86.84	19.01
MEAN	1.12	1.50	1.05	.96	1.14	1.79	7.18	94.0	31.2	1.85	2.80	.63
MAX	2.3	4.1	1.4	1.0	1.4	4.4	29	198	73	4.4	15	4.5
MIN	.71	.86	.81	.88	.90	1.0	1.5	31	5.6	.92	.53	.25
AC-FT	69	89	64	59	63	110	427	5780	1860	114	172	38

CAL YR 1978 TOTAL 6699.12 MEAN 18.4 MAX 191 MIN .30 AC-FT 13290
WTR YR 1979 TOTAL 4459.29 MEAN 12.2 MAX 198 MIN .25 AC-FT 8840

06066500 MISSOURI RIVER BELOW HOLTER DAM, NEAR WOLF CREEK, MT

LOCATION.--Lat 46°59'41", long 112°00'37", in NE¼SW¼SE¼ sec.5, T.14 N., R.3 W., Lewis and Clark County, Hydrologic Unit 10030102, on left bank 0.4 mi (0.6 km) downstream from Holter Dam, 2.8 mi (4.5 km) southeast of Wolf Creek, and at mile 2,211.13 (3,557.71 km).

PERIOD OF RECORD.--October 1945 to current year.

GAGE.--Water-stage recorder. Datum of gage is 3,464.11 ft (1,055.861 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for June 1 to Sept. 30, which are fair. Flow regulated by nine smaller irrigation reservoirs and powerplants (see p. 605,612), Clark Canyon Reservoir (see p. 42), and Canyon Ferry Reservoir (see p. 79). Diversions for irrigation of about 594,400 acres (2,410 km²). Several observations of water temperature were made during the year and are in files of Helena district office.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 34,800 ft³/s (986 m³/s) June 8, 1948, gage height, 11.70 ft (3.566 m); minimum, probably less than 250 ft³/s (7.08 m³/s) during powerplant shutdown July 26, 1968; minimum daily, 747 ft³/s (21.2 m³/s) May 27, 1962.

EXTREMES FOR CURRENT RECORD.--Maximum discharge, 7,620 ft³/s (216 m³/s) May 25, gage height, 4.17 ft (1.271 m); minimum daily, 3,060 ft³/s (86.7 m³/s) July 16.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4840	5930	6090	6710	6540	4900	5990	5970	6450	4760	3840	3470
2	4980	5820	5970	5950	6450	4920	6020	5540	6360	4320	3890	3840
3	4730	5780	6120	6010	6400	5120	6170	5730	6260	4260	3970	3780
4	4250	5780	6090	5940	6830	5980	6230	6030	6240	4210	4000	3650
5	4150	5790	6180	5690	6770	5550	6280	6460	6360	4120	3900	3800
6	4330	5610	6260	5750	6560	4930	6230	4510	6490	4040	3850	3770
7	4760	5630	6270	5730	6440	5050	6380	4030	6580	3700	3870	3670
8	4470	5710	6230	5700	6390	5130	6380	4140	6510	3490	3930	3540
9	3850	5910	6060	5720	6410	5120	6390	4100	6200	3490	4120	3560
10	3770	5810	6070	5830	5890	5120	6350	4050	6100	3480	3890	3810
11	3830	5820	5750	6040	5020	5120	6410	4100	6230	3340	3800	4010
12	4000	5760	5750	6160	5050	5110	6320	4460	6050	3450	3880	3830
13	3990	5800	5860	6330	5040	5150	6240	4550	5410	3510	3920	3640
14	3910	6120	6010	6650	5130	5140	6290	4210	4490	3540	3940	3530
15	3950	5400	6180	6520	5060	5150	6290	4200	3940	3430	3870	3580
16	3900	5330	6140	6380	5050	5140	6260	4610	3530	3060	3820	3790
17	4650	5360	5970	6130	5160	5190	6280	4940	3770	3520	3850	3930
18	5180	5500	5730	6180	4900	5610	6390	4850	4550	3530	4000	3860
19	5080	5570	5580	6190	4890	6020	6280	5860	4840	3610	4660	3700
20	5060	6330	5940	6170	4400	6190	6300	6760	4180	3900	4140	3720
21	5180	6810	6120	6380	4950	6170	6270	6740	5030	3700	3960	3930
22	5270	6640	6260	6470	5000	6170	6340	6810	3880	3520	3930	4230
23	5130	5600	6250	6330	4950	6090	6320	6750	3810	3560	3690	3960
24	5190	5150	5840	6530	5170	6030	6240	7070	3880	3670	3910	3790
25	5220	5050	5780	6560	5520	6040	6250	7410	4130	3700	3950	3850
26	5470	5110	6100	6430	5210	5980	6300	7110	4150	3650	3800	3840
27	5790	5730	6450	6330	4660	6110	6370	6850	4190	3490	3920	3740
28	5620	5850	6630	6450	4880	6280	6470	6870	4060	3640	3980	3940
29	5960	5940	6750	6450	---	6350	6380	6680	4050	3850	3760	3740
30	6000	6120	6800	6470	---	6300	6170	6590	4610	3720	3390	3660
31	6060	---	6800	6470	---	6090	---	6540	---	3660	3390	---
TOTAL	148770	172820	190050	192650	155420	173250	188590	174520	152330	115120	121020	113180
MEAN	4799	5761	6131	6215	5551	5589	6286	5630	5078	3714	3904	3773
MAX	6060	6810	6600	6710	6830	6350	6470	7410	6580	4760	4660	4230
MIN	3770	5050	5580	5690	4860	4900	5990	4030	3530	3060	3390	3470
AC-FT	295100	342800	377000	382100	308300	343600	374100	346200	302100	228300	240000	224500

CAL YR 1978 TOTAL 2352800 MEAN 6446 MAX 10500 MIN 3770 AC-FT 4667000
WTR YR 1979 TOTAL 1897720 MEAN 5199 MAX 7410 MIN 3060 AC-FT 3764000

06076690 SMITH RIVER NEAR FORT LOGAN, MT

LOCATION.--Lat 46°47'45", long 111°10'41", in NE¼SW¼SW¼ sec.13, T.12 N., R.4 E., Meagher County, Hydrologic Unit 10030103, on left bank, 15 ft (5 m) downstream from ranch bridge, 1.0 mi (1.6 km) upstream from Sheep Creek, and 9.0 mi (14.5 km) north of Fort Union.

DRAINAGE AREA.--846 mi^2 (2,191 km^2).

PERIOD OF RECORD.--October 1977 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 4,400 ft (1,340 m), from topographic map.

REMARKS.--Records good except those for winter period, which are poor. Flow slightly regulated by Smith River Reservoir (see p. 607,612). Diversions for irrigation of about 19,300 acres (78 km^2) above station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,930 ft^3/s (54.7 m^3/s) Mar. 22, 1978, gage height, 5.46 ft (1.664 m); minimum, 33 ft^3/s (0.93 m^3/s) Nov. 11, 1978, gage height, 2.12 ft (0.646 m), result of freezeup.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,490 ft^3/s (42.2 m^3/s) June 20, gage height, 5.31 ft (1.618 m), only peak above base of 900 ft^3/s (25.5 m^3/s); minimum, 33 ft^3/s (0.93 m^3/s) Nov. 11, gage height, 2.12 ft (0.646 m), result of freezeup.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	153	152	140	90	85	120	181	360	308	284	114	110
2	150	156	120	100	88	130	171	371	248	253	107	105
3	150	153	125	90	90	150	173	382	217	233	100	103
4	151	154	130	85	92	140	173	365	203	223	92	98
5	153	150	140	80	95	126	183	367	203	217	86	97
6	150	144	120	85	95	184	209	379	234	200	83	99
7	151	143	100	95	100	462	243	387	251	192	80	99
8	150	148	110	100	105	599	265	360	254	181	77	98
9	148	150	125	110	110	451	268	335	250	173	84	93
10	146	65	140	115	115	328	278	313	230	173	86	101
11	147	60	150	120	115	280	276	300	206	163	89	116
12	145	70	150	110	115	278	249	288	195	156	89	115
13	142	80	145	100	115	277	230	284	201	156	93	112
14	143	90	140	95	110	266	218	290	227	157	113	108
15	145	100	140	90	105	270	217	295	229	147	129	106
16	145	110	135	95	100	265	232	310	208	145	124	104
17	147	120	135	95	105	269	259	311	196	141	113	101
18	145	105	130	115	120	243	305	305	277	131	111	98
19	145	90	125	125	115	223	310	310	869	128	117	96
20	149	75	130	130	115	210	282	308	1420	126	127	96
21	153	60	135	125	110	199	259	290	1370	129	129	98
22	153	70	140	125	105	195	251	273	1140	125	134	98
23	154	80	145	120	100	189	280	285	868	134	126	96
24	155	90	145	115	110	187	308	279	688	132	127	96
25	155	105	140	105	130	198	312	303	554	125	149	97
26	155	115	130	100	125	187	306	316	458	117	152	101
27	155	125	115	95	120	182	303	332	387	114	153	100
28	155	135	105	92	115	174	300	372	355	117	157	100
29	155	145	95	90	---	191	307	425	311	124	133	100
30	158	150	85	85	---	191	332	392	338	128	123	101
31	154	---	75	85	---	191	---	362	---	120	112	---
TOTAL	4659	3390	3940	3162	3005	7355	7680	10249	12875	4944	3504	3042
MEAN	150	113	127	102	107	237	256	331	429	159	113	101
MAX	158	156	150	130	130	599	332	425	1420	284	157	116
MIN	142	60	75	80	85	120	171	273	195	114	77	93
AC-FT	9240	6720	7810	6270	5960	14590	15230	20330	25540	9810	6960	6030

CAL YR 1978 TOTAL 90672 MEAN 248 MAX 1720 MIN 60 AC-FT 179800
WTR YR 1979 TOTAL 67810 MEAN 186 MAX 1420 MIN 60 AC-FT 134500

06078200 MISSOURI RIVER NEAR ULM, MT

LOCATION.--Lat 47°26'09", long 111°23'07", in NE¼NW¼NW¼ sec.5, T.19 N., R.3 E., Cascade County, Hydrologic Unit 10030102, on left bank 5.6 mi (9.0 km) east of Ulm and 9.1 mi (14.6 km) downstream from Smith River.

DRAINAGE AREA.--20,941 mi² (54,237 km²).

PERIOD OF RECORD.--August 1957 to current year.

GAGE.--Water-stage recorder. Datum of gage is 3,313.27 ft (1,009.885 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair except those for winter period, which are poor. Flow regulated by 10 smaller irrigation reservoirs and power plants (see p. 605-612). Clark Canyon Reservoir (see p. 42), and Canyon Ferry Reservoir (see p. 79). Diversions for irrigation of about 630,400 acres (2,550 km²) above station. Most years several observations of water temperatures were made and are available in files of Helena district office.

AVERAGE DISCHARGE.--22 years, 6,784 ft³/s (192.1 m³/s), 4,915,000 acre-ft/yr (6.06 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 27,500 ft³/s (779 m³/s) June 22, 1964, gage height, 14.44 ft (4.401 m); maximum gage height, 14.64 ft (4.462 m) June 22, 1975; minimum daily discharge, 1,700 ft³/s (48.1 m³/s) June 17, 1961.

EXTREMES OUTSIDE PEIOD OF RECORD.--Flood in June 1953 reached a stage of about 17 ft (5.2 m); discharge, 35,000 ft³/s (990 m³/s). Flood in June 1948 reached a stage of about 16 ft (4.9 m); discharge, 32,000 ft³/s (906 m³/s), from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 10,800 ft³/s (306 m³/s) May 26, gage height, 7.95 ft (2.423 m); minimum daily, 3,550 ft³/s (101 m³/s) Sept. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5520	6730	6870	7300	7200	5600	6750	8710	8900	5330	3930	3550
2	5460	6620	6790	7000	7200	5600	6620	8650	8570	5550	3920	3620
3	5590	6510	6800	6800	7200	5800	6580	8410	8330	5260	3920	3840
4	5420	6480	6900	6800	7400	6100	6640	8340	8140	5160	3940	3910
5	5060	6420	7000	6500	7600	6600	6720	8640	8140	5090	3990	3740
6	4880	6530	7000	6400	7500	6000	6780	9170	8140	5050	3920	3870
7	4970	6420	7000	6400	7400	5800	6860	8090	8340	4940	3830	3840
8	5310	6300	7100	6400	7400	6000	7280	7320	8430	4690	3820	3770
9	5310	6340	7000	6400	7400	6100	7360	7100	8280	4380	3810	3620
10	4660	6590	6800	6500	6900	6200	7570	6840	7850	4320	4020	3570
11	4450	6440	6600	6600	5800	6200	7740	6530	7600	4240	3910	3770
12	4480	6400	6500	6800	5600	6200	7750	6390	7590	4110	3790	4020
13	4620	6370	6600	7000	5600	6200	7550	6560	7340	4120	3820	3980
14	4710	6440	6700	7300	5600	6200	7360	6750	6780	4170	3940	3740
15	4600	6590	6800	7400	5600	6440	7520	6720	5980	4190	4060	3670
16	4610	6280	6900	7200	5600	6390	7520	6950	5450	4140	3990	3610
17	4600	6070	6800	7000	5600	6420	7410	7800	4970	3760	3920	3760
18	5110	6100	6600	7000	5600	6450	7640	8400	5390	3960	3890	3890
19	5790	6270	6400	7000	5400	6640	8280	8220	6270	4020	3970	3890
20	5740	6650	6600	7000	5400	6910	8090	8870	7870	4060	4530	3740
21	5710	7200	6600	7100	5400	7000	7890	9510	7900	4290	4400	3720
22	5830	7600	7000	7200	5400	6920	7750	9490	7640	4230	4140	3870
23	5960	6800	7000	7100	5600	6870	7820	9690	6750	3960	4120	4140
24	5800	6200	6800	7200	5800	6840	7920	9870	5990	3940	4070	4030
25	5890	5700	6600	7400	6200	6760	7840	10400	5650	3980	4080	3890
26	5930	5800	6800	7200	6300	6760	7840	10700	5550	4030	4210	3880
27	6050	6280	7000	7200	5800	6700	8120	10500	5380	4050	4140	3910
28	6420	6580	7300	7200	5600	6790	8340	10300	5290	3840	4120	3880
29	6470	6680	7600	7200	---	6920	8550	10200	5110	3830	4240	3940
30	6590	6720	7600	7200	---	6950	8620	9690	4970	4080	4060	3870
31	6700	---	7500	7200	---	6890	---	9260	---	3960	3680	---
TOTAL	168240	194110	213760	216000	175100	199250	226510	264270	208790	134730	124200	114550
MEAN	5427	6470	6895	6968	6254	6427	7550	8525	6960	4346	4006	3818
MAX	6700	7600	7600	7400	7600	7000	8620	10700	8900	5550	4530	4140
MIN	4450	5700	6400	6400	5400	5600	6580	6390	4970	3760	3680	3550
AC-FT	333700	385000	424000	428400	347300	395200	449300	524200	414100	267200	246400	227200

CAL YR 1978 TOTAL 2842420 MEAN 7787 MAX 14500 MIN 4450 AC-FT 5638000
WTR YR 1979 TOTAL 2239490 MEAN 6136 MAX 10700 MIN 3550 AC-FT 4442000

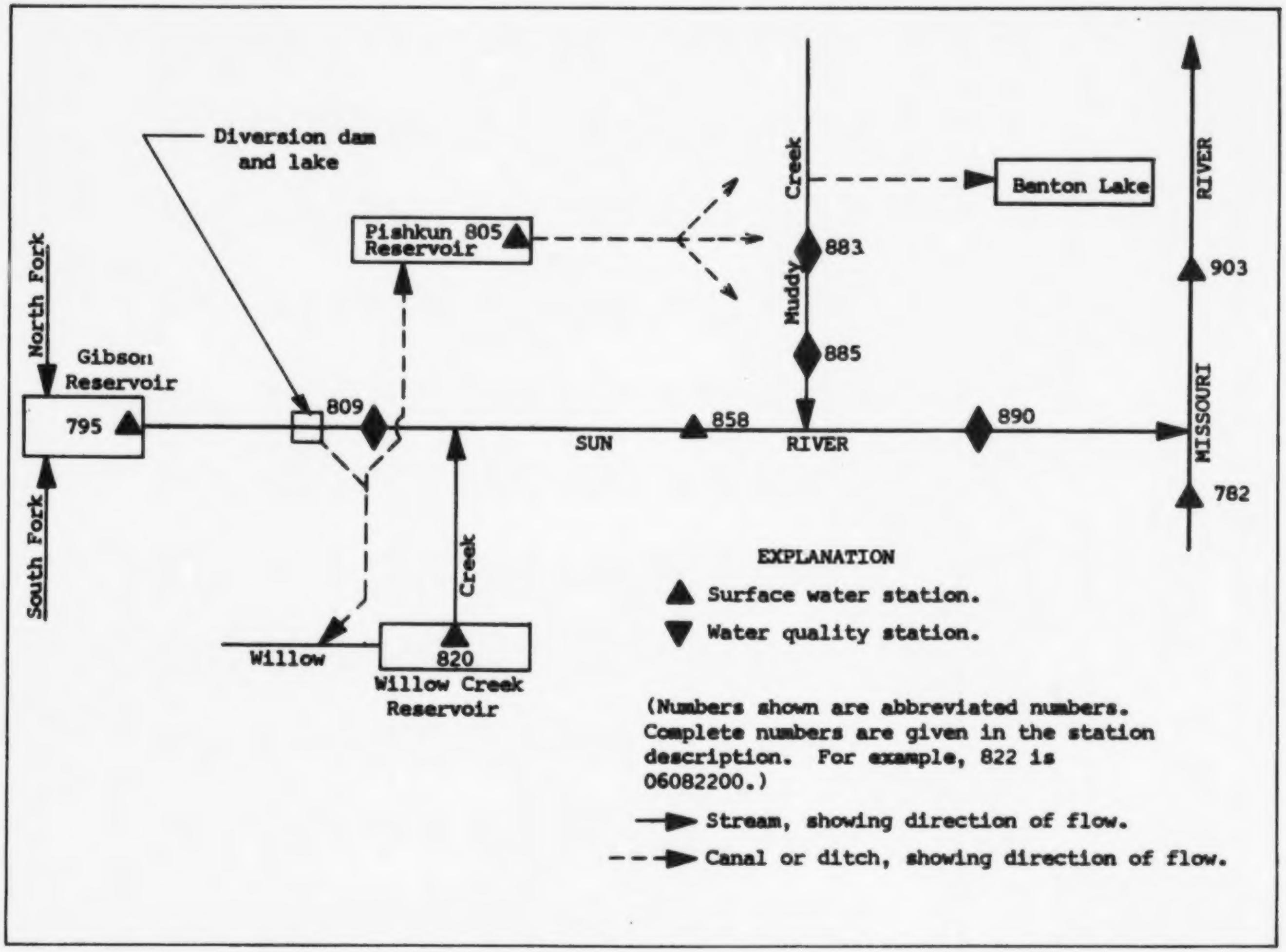

Diversion dam and lake
North Fork
South Fork
Gibson Reservoir
795
809
Pishkun 805 Reservoir
Willow
820
Creek
Willow Creek Reservoir
SUN
858
RIVER
890
Creek
Muddy
883
885
Benton Lake
MISSOURI
RIVER
903
782
EXPLANATION
▲ Surface water station.
▼ Water quality station.
(Numbers shown are abbreviated numbers. Complete numbers are given in the station description. For example, 822 is 06082200.)
Stream, showing direction of flow.
Canal or ditch, showing direction of flow.

Figure 7. Schematic diagram showing diversions and storage in Sun River basin.

06080900 SUN RIVER BELOW DIVERSION DAM, NEAR AUGUSTA, MT

LOCATION.--Lat 47°37'10", long 112°41'28", near center of east line of sec.36, T.22 N., R.9 W., Lewis and Clark County, Hydrologic Unit 10030104, Lewis and Clark National Forest, on road bridge 1.0 mi (1.6 km) downstream from diversion dam, 16.5 mi (26.5 km) northwest of Augusta, and at mile 95.6 (153.8 km).

DRAINAGE AREA.--609 mi² (1,577 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1967 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 4,370 ft (1,332 m), from topographic map.

REMARKS.--Water-discharge records good except those for winter period, which are fair. Flow regulated by Gibson Dam (see p.607,612). Diversions above station into Pishkun Canal and Willow Creek feeder canal for irrigation of about 91,000 acres (368 km²) below station.

AVERAGE DISCHARGE.--12 years, 444 ft³/s (12.57 m³/s), 321,700 acre-ft/yr (397 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 32,000 ft³/s (906 m³/s) June 19, 1975, gage height, 19.00 ft (5.791 m); minimum daily, 20 ft³/s (0.57 m³/s) Dec. 16, 1974.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge known, 59,700 ft³/s (1,690 m³/s) June 9, 1964, from computation of peak flow over dam 1.0 mi (1.6 km) upstream; gage height, about 24.8 ft (7.56 m), from floodmark, from levels of Aug. 12, 1971.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,380 ft³/s (152 m³/s) May 27, gage height, 9.38 ft (2.859 m); minimum daily, 47 ft³/s (1.33 m³/s) Sept. 11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	113	92	90	175	180	170	278	156	1480	213	123	59
2	113	92	90	178	180	171	277	152	1300	203	131	58
3	112	95	92	180	182	170	277	154	1410	196	170	57
4	111	92	92	180	180	172	279	229	2440	191	192	55
5	112	92	92	182	180	176	280	480	3050	184	189	54
6	103	91	90	185	179	182	282	628	3080	213	183	54
7	92	94	90	187	179	191	283	630	2300	198	163	53
8	91	94	90	190	179	184	283	632	1640	185	163	52
9	91	94	90	192	179	179	287	704	1320	175	180	50
10	93	86	92	195	178	176	285	882	1290	199	187	49
11	90	88	92	195	179	179	285	883	866	169	162	47
12	91	90	90	190	177	218	285	871	916	179	165	48
13	91	93	90	186	182	308	285	879	1330	176	147	65
14	92	92	92	185	176	284	284	885	987	165	129	75
15	91	90	92	165	177	285	284	886	594	172	126	59
16	91	92	92	185	177	286	288	1130	582	171	133	59
17	91	93	92	180	178	287	291	1620	593	179	123	59
18	92	89	92	181	177	285	294	2080	635	185	103	59
19	91	90	120	181	178	283	290	2390	833	178	86	59
20	91	90	160	180	177	282	198	2660	947	171	68	59
21	91	90	160	181	176	281	130	2670	946	163	63	59
22	92	93	160	179	175	283	142	2410	642	155	66	59
23	93	92	168	178	175	281	144	2020	256	146	65	59
24	92	90	180	178	176	282	140	2010	264	144	103	75
25	92	92	189	177	176	284	140	3800	279	143	119	74
26	93	92	191	175	175	281	144	4690	357	135	116	74
27	93	90	191	177	171	281	147	5160	365	125	107	70
28	93	90	189	177	171	282	151	4690	244	131	54	71
29	93	90	185	175	---	284	155	3290	233	133	63	72
30	92	90	180	175	---	280	161	2250	230	123	62	71
31	91	---	175	178	---	279	---	1720	---	120	60	---
TOTAL	2957	2738	3888	5642	4973	7566	7049	53701	31409	5220	3861	1814
MEAN	95.4	91.3	125	182	178	244	235	1732	1047	168	125	60.5
MAX	113	95	191	195	182	308	294	5160	3080	213	192	75
MIN	90	86	90	175	171	170	130	152	230	120	54	47
AC-FT	5870	5430	7710	11190	9860	15010	13980	106500	62300	10350	7660	3600

CAL YR 1978 TOTAL 206140 MEAN 565 MAX 6110 MIN 74 AC-FT 408900
WTR YR 1979 TOTAL 130618 MEAN 358 MAX 5160 MIN 47 AC-FT 259500

06080900 SUN RIVER BELOW DIVERSION DAM, NEAR AUGUSTA, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1968 to September 1979 (discontinued).

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1967 to September 1979 (discontinued).
WATER TEMPERATURES: October 1967 to September 1979 (discontinued).

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 504 micromhos Mar. 7, 1977; minimum daily, 170 micromhos on several days in 1972.
WATER TEMPERATURES: Maximum daily, 18.5°C Aug. 1, 1973; minimum daily, 0.0°C on several days during winter periods most years.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 416 micromhos Dec. 17; minimum daily, 179 micromhos June 10.
WATER TEMPERATURES: Maximum daily, 18.0°C Aug. 16; minimum daily, 0.0°C on several days during December to February.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)
OCT											
02...	1200	113	340	8.3	10.5	180	50	50	14	1.8	.1
NOV											
15...	1230	88	392	8.2	2.0	200	60	55	16	2.2	.1
JAN											
11...	1145	197	358	7.9	.5	180	53	50	14	2.0	.1
FEB											
28...	1300	168	377	8.2	3.0	210	75	59	14	2.2	.1
APR											
12...	1050	285	368	8.2	5.0	190	46	53	13	1.9	.1
MAY											
30...	1150	2220	210	8.0	7.0	110	17	32	7.3	1.8	.1
JUN											
27...	1215	282	193	8.5	11.0	98	14	28	6.9	1.1	.0
AUG											
03...	1010	187	250	8.3	15.0	130	15	36	8.6	1.4	.1
29...	1510	61	310	8.4	17.0	160	29	44	12	2.2	.1

DATE	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)
OCT											
02...	.7	130	50	.6	.3	4.9	202	.27	61.6	.03	.00
NOV											
15...	.8	140	62	.6	.2	5.4	228	.31	54.4	.05	.00
JAN											
11...	.6	130	51	.5	.2	5.2	203	.28	108	.33	.01
FEB											
28...	.7	130	59	.6	.3	5.5	220	.30	99.8	.08	.01
APR											
12...	.6	140	49	.7	.3	5.2	208	.28	160	.06	.00
MAY											
30...	.8	93	11	.4	.1	21	131	.18	785	.06	.00
JUN											
27...	.5	84	13	.5	.1	4.4	105	.14	79.9	.00	.02
AUG											
03...	1.0	110	18	.3	.2	4.6	136	.19	68.7	.00	.02
29...	.7	130	36	.4	.2	4.9	179	.24	29.5	.08	.00

06080900 SUN RIVER BELOW DIVERSION DAM, NEAR AUGUSTA, MT--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	342	379	394	367	377	378	367	352	182	196	236	313
2	349	375	377	323	373	376	362	351	186	195	240	317
3	350	376	387	363	376	380	361	350	183	195	243	324
4	350	378	381	366	376	380	368	350	181	193	247	324
5	355	379	394	316	376	387	369	349	188	194	248	325
6	355	378	399	370	375	386	364	347	186	192	249	328
7	358	379	---	---	376	388	371	337	187	196	251	332
8	367	378	---	368	375	378	369	341	184	199	255	330
9	362	377	399	366	372	377	364	341	183	201	261	326
10	367	378	399	366	373	388	362	338	179	201	260	331
11	373	358	404	366	372	380	362	317	180	202	260	340
12	372	364	408	363	378	383	365	321	183	200	258	343
13	373	366	406	364	372	367	365	322	181	203	260	345
14	369	371	408	357	374	372	369	318	183	207	262	350
15	370	389	414	379	377	368	364	319	184	206	261	355
16	367	391	405	366	378	368	366	315	184	207	260	360
17	370	373	416	367	---	361	363	309	187	208	258	367
18	372	384	410	368	377	358	362	301	184	210	262	369
19	373	364	398	366	379	359	352	296	183	211	265	371
20	373	364	384	367	377	360	351	299	180	215	271	370
21	381	---	380	366	377	366	356	291	181	219	276	372
22	382	372	376	366	378	360	352	278	181	221	266	372
23	373	376	381	368	376	363	348	274	189	222	268	372
24	372	374	378	372	380	365	347	271	190	227	267	375
25	372	378	373	372	378	360	348	257	188	226	291	380
26	373	379	368	370	377	359	348	252	186	229	296	390
27	372	382	370	368	382	362	350	239	185	230	303	---
28	375	393	366	372	378	362	351	228	188	243	306	---
29	374	379	368	373	---	362	356	225	189	232	311	---
30	378	381	372	370	---	366	352	221	208	234	311	---
31	378	---	374	374	---	363	---	214	---	237	321	---
MEAN	368	377	389	364	376	371	359	301	186	211	271	349

WTR YR 1979 MEAN 326 MAX 416 MIN 179

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10.0	5.0	.5	.5	.0	2.0	3.0	5.0	7.5	10.5	16.5	13.0
2	9.0	5.5	.5	.5	.5	.5	2.5	6.0	8.0	8.0	14.5	14.0
3	8.5	5.5	1.5	.5	.5	2.0	2.0	5.5	8.0	13.0	13.5	12.5
4	8.0	5.0	2.0	.5	1.0	3.0	2.5	5.5	10.0	10.0	16.0	13.0
5	8.0	5.5	.5	.5	2.0	3.5	3.5	5.5	9.5	11.0	16.0	11.0
6	8.0	4.5	.5	.5	2.0	4.5	4.5	6.0	9.0	10.5	15.0	11.5
7	10.0	6.5	.0	---	1.5	5.0	5.0	5.0	8.0	10.0	14.0	12.0
8	8.5	5.5	.5	.0	.5	3.0	5.0	4.5	8.5	13.0	15.5	12.5
9	7.5	4.0	1.0	.5	3.0	2.0	5.0	4.5	7.5	10.0	13.5	13.0
10	10.0	2.5	.5	.5	2.0	5.5	4.5	5.0	8.5	13.0	16.0	13.5
11	10.5	1.5	2.0	.5	2.0	5.0	4.5	6.0	7.5	11.0	14.0	10.0
12	8.0	2.0	1.5	.5	1.0	4.0	4.0	5.0	9.0	10.0	15.5	12.0
13	7.5	3.0	.5	.5	2.5	2.5	5.0	6.0	9.0	13.0	15.0	11.0
14	10.0	1.0	1.5	.0	.5	2.5	5.5	6.0	8.0	11.5	15.5	11.0
15	10.5	1.5	1.0	.5	.5	4.0	5.0	6.0	9.5	10.5	15.0	10.5
16	8.5	2.0	1.0	.5	1.0	4.0	5.0	7.0	8.5	14.0	18.0	11.5
17	9.0	2.5	.5	1.0	1.0	3.0	6.0	6.0	9.5	12.0	14.5	11.0
18	10.5	1.0	.5	.5	2.0	2.5	5.0	7.5	8.5	13.5	15.0	10.0
19	8.5	1.0	.5	1.0	2.0	2.5	5.0	6.5	9.0	15.0	15.5	11.0
20	8.0	1.0	1.0	1.0	1.5	2.0	4.0	7.5	8.5	13.0	16.0	10.5
21	7.5	.5	1.0	1.5	1.0	2.0	4.0	7.5	8.0	12.0	15.0	10.0
22	8.0	1.0	1.0	.5	.5	4.0	5.0	7.0	8.5	13.0	14.0	11.0
23	7.5	1.0	1.0	.5	.5	3.0	3.5	7.0	8.5	12.0	13.5	12.5
24	7.5	1.5	1.5	2.0	.5	5.0	5.0	8.0	8.0	13.0	15.0	13.0
25	6.0	2.0	.5	1.0	2.5	3.0	4.0	6.5	9.5	12.0	16.0	9.5
26	6.5	2.0	.5	.5	3.0	1.5	6.0	9.0	9.5	12.5	14.5	12.0
27	5.5	2.0	.5	1.0	2.5	1.5	5.5	8.5	12.0	13.0	14.5	---
28	6.0	2.5	.5	1.0	2.0	2.5	5.5	7.0	9.5	13.5	14.0	---
29	6.0	1.5	.0	.5	---	2.0	6.0	8.0	10.5	14.0	13.5	---
30	6.0	1.5	.0	.5	---	4.0	6.0	7.0	10.5	16.0	14.0	---
31	4.5	---	.0	.5	---	3.5	---	7.0	---	13.0	14.0	---
MEAN	8.0	2.5	1.0	.5	1.5	3.0	4.5	6.5	9.0	12.0	15.0	11.5

WTR YR 1979 MEAN 6.5 MAX 18.0 MIN .0

06085800 SUN RIVER AT SIMMS, MT

LOCATION.--Lat 47°30'06", long 111°55'56", in NW¼NW¼SE¼ sec.12, T.20 N., R.3 W., Cascade County, Hydrologic Unit 10030104, on left bank 500 ft (152 m) downstream from county bridge, 0.7 mi (1.1 km) north of Simms, and 0.7 mi (1.1 km) downstream from Simms Creek.

DRAINAGE AREA.--1,320 mi² (3,419 km²).

PERIOD OF RECORD.--May to June 1953 (in WSP 1320-B), May to June 1964 (in WSP 1840-B), March 1966 to Sept. 30, 1979 (discontinued).

GAGE.--Water-stage recorder. Datum of gage is 3,546.58 ft (1,080.998 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for winter period, which are poor. Flow regulated by Gibson, Pishkun, Willow Creek, and Nilan Reservoirs (see p.607,608,612). Diversions for irrigation of about 105,000 acres (425 km²) above station. Several observations of water temperature were made during the year and are available in files of Helena district office.

AVERAGE DISCHARGE.--13 years, 549 ft³/s (15.55 m³/s), 397,800 acre-ft/yr (490 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximun discharge, 50,000 ft³/s (1,420 m³/s), June 9, 1964, gage height, about 13.7 ft (4.18 m), from floodmark, from slope-area measurement of peak flow at site 4 mi (6 km) upstream; minimum daily, 19 ft³/s (0.54 m³/s) Sept. 29, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,600 ft³/s (130 m³/s) May 27, gage height, 6.06 ft (1.847 m); minimum daily, 29 ft³/s (0.82 m³/s) Sept. 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	168	170	150	200	220	220	369	371	1770	205	161	90
2	230	168	150	210	225	225	362	400	1510	209	159	90
3	232	164	150	215	230	230	358	380	1340	210	161	88
4	232	166	150	220	230	240	363	366	1760	214	137	86
5	229	167	155	220	235	250	368	428	2420	209	130	87
6	229	166	150	225	235	270	374	713	2570	203	123	88
7	228	166	145	225	235	285	402	815	2340	215	117	84
8	213	160	140	230	230	285	409	824	1830	203	117	79
9	201	165	140	235	230	270	413	816	1390	204	117	75
10	195	58	140	240	230	270	505	1010	1190	186	113	70
11	191	55	140	240	230	350	477	1020	1160	177	113	63
12	187	100	140	240	230	555	438	1020	607	159	141	69
13	185	150	140	235	230	482	421	1020	970	180	146	66
14	185	165	140	235	230	551	407	1030	1160	182	145	63
15	185	180	140	235	230	532	397	1050	568	176	144	68
16	185	180	140	235	230	507	389	1080	439	175	132	70
17	187	165	140	235	230	476	388	1480	470	176	127	63
18	186	160	140	230	230	451	434	1810	688	178	126	62
19	185	150	140	230	225	427	463	2020	675	182	126	56
20	180	135	150	230	225	418	422	2260	962	179	119	47
21	177	130	180	230	225	414	343	2310	908	176	114	45
22	181	150	200	230	225	405	269	2320	905	173	130	37
23	182	160	210	225	225	392	304	2110	474	166	136	33
24	174	170	220	225	225	389	323	2010	274	155	130	32
25	171	175	230	220	230	394	351	2500	247	159	120	33
26	170	180	240	220	230	380	348	3850	240	168	117	37
27	167	185	240	220	230	378	379	4260	266	168	116	33
28	169	180	235	215	225	380	354	4340	229	164	120	30
29	172	170	230	215	---	380	341	3350	178	167	94	29
30	173	160	220	215	---	383	341	2560	164	173	85	32
31	173	---	210	215	---	375	---	2090	---	167	88	---
TOTAL	5922	4650	5295	6995	6405	11564	11512	51613	29704	5660	3904	1805
MEAN	191	155	171	226	229	373	384	1665	990	183	126	60.2
MAX	232	185	240	240	235	555	505	4340	2570	215	161	90
MIN	167	55	140	200	220	220	269	366	164	155	85	29
AC-FT	11750	9220	10500	13870	12700	22940	22830	102400	58920	11230	7740	3580

CAL YR 1978 TOTAL 234663 MEAN 643 MAX 6360 MIN 55 AC-FT 465500
WTR YR 1979 TOTAL 145029 MEAN 397 MAX 4340 MIN 29 AC-FT 287700

06088300 MUDDY CREEK NEAR VAUGHN, MT

LOCATION.--Lat 47°37'30", long 111°38'05", in NW¼NE¼ sec.32, T.22 N., R.1 E., Cascade County, Hydrologic Unit 10030104, on left bank 200 ft (61 m) downstream from bridge on county road and 6.2 mi (10.0 km) northwest of Vaughn.

DRAINAGE AREA.--282 mi² (730 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1968 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 3,441.79 ft (1,049.058 m) National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers).

REMARKS.--Water-discharge records good except those for winter period, which are poor. Natural flow increased by wastage from Greenfields Irrigation Project. Diversions for irrigation of about 400 acres (1.62 km²) above station. Pumped diversions from Muddy Creek above station in SW¼ sec.2, T.22 N., R.1 W., to supplement water supply for Benton Lake Wildlife Refuge are listed below.

AVERAGE DISCHARGE.--11 years, 123 ft³/s (3.483 m³/s), 89,110 acre-ft/yr (110 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,110 ft³/s (81.1 m³/s) May 7, 1975, gage height, 13.46 ft (4.103 m); minimum daily, 8.0 ft³/s (0.23 m³/s) Dec. 8, 1972.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 1,100 ft³/s (31.2 m³/s) Mar. 7; minimum gage height, 11.65 ft (3.551 m) Mar. 7 (backwater from ice); minimum daily discharge, 25 ft³/s (0.71 m³/s) Jan. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	84	60	45	31	26	45	49	64	168	250	423	212
2	88	60	40	33	27	42	48	60	209	271	379	227
3	86	59	45	33	28	40	48	58	240	266	383	216
4	85	57	45	32	29	65	49	57	237	316	359	207
5	84	57	40	31	30	100	48	139	220	333	370	203
6	83	56	40	31	30	350	53	69	214	403	366	202
7	85	56	40	32	31	1100	74	55	195	338	299	214
8	82	55	42	33	32	800	90	55	202	307	259	203
9	77	52	45	33	32	500	87	52	173	286	254	156
10	74	50	50	32	33	388	110	49	134	271	272	114
11	73	50	52	30	33	425	137	46	148	279	301	101
12	75	50	54	30	34	360	83	54	113	278	312	96
13	79	52	55	30	35	216	73	115	93	272	297	89
14	77	54	54	28	35	150	70	157	81	264	309	88
15	75	60	50	26	33	133	66	121	81	281	346	79
16	78	70	52	28	30	138	64	131	75	293	309	77
17	79	70	52	26	30	142	66	147	143	235	253	76
18	81	65	48	29	31	102	70	154	364	198	238	78
19	74	60	45	31	30	85	66	136	415	182	253	77
20	71	50	45	33	29	72	62	112	473	199	263	75
21	71	45	46	35	26	69	58	108	470	224	250	71
22	71	45	46	35	27	66	57	82	375	223	246	60
23	68	50	50	35	27	63	68	126	339	250	270	60
24	66	50	50	33	26	64	87	123	280	234	279	59
25	66	45	45	31	30	62	127	103	245	257	290	56
26	66	45	40	30	40	61	90	118	212	280	291	56
27	65	45	40	29	50	56	76	107	191	295	288	54
28	65	45	37	26	48	54	70	150	181	307	256	53
29	66	48	34	27	---	57	65	159	225	411	236	52
30	64	50	31	25	---	54	65	172	251	461	234	53
31	62	---	30	26	---	51	---	156	---	469	222	---
TOTAL	2320	1611	1390	950	894	5912	2174	3258	6747	8933	9107	3364
MEAN	74.8	53.7	44.8	30.6	31.9	191	72.5	104	225	288	294	112
MAX	88	70	55	35	50	1100	137	172	473	469	423	227
MIN	62	45	30	25	26	40	48	46	75	182	222	52
AC-FT	4600	3200	2760	1880	1770	11730	4310	6420	13380	17720	18060	6670
(†)	0	0	0	0	0	0	0	0	0	0	68	0

CAL YR 1978 TOTAL 47975 MEAN 131 MAX 1370 MIN 23 AC-FT 95160
WTR YR 1979 TOTAL 46640 MEAN 128 MAX 1100 MIN 25 AC-FT 92510

†Diversions, in acre-feet, to Benton Lake, furnished by Fish and Wildlife Service.

06088300 MUDDY CREEK NEAR VAUGHN, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1968 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: July 1968 to current year.
WATER TEMPERATURES: July 1968 to current year.
SUSPENDED-SEDIMENT DISCHARGE: July 1968 to current year.

REMARKS.--Flow affected by ice during most of winter months.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 6,400 micromhos Apr. 29, 1976; minimum daily, 365 micromhos Feb. 20, 1969.
WATER TEMPERATURES: Maximum daily, 27.5°C July 6, 1975; minimum daily, 0.0°C on many days during winter periods.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 13,000 mg/L Mar. 18, 1978; minimum daily mean, 11 mg/L Oct. 19, 1968, Oct. 19, 1972, Oct. 30, 1973.
SEDIMENT LOADS: Maximum daily, 48,000 tons (43,500 megagrams) May 7, 1975; minimum daily, 0.84 ton (0.76 megagram) Jan. 8, 1973.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 4,700 micromhos Apr. 25; minimum daily, 535 micromhos June 4.
WATER TEMPERATURES: Maximum daily, 24.5°C June 29, July 20, 21; minimum daily, 0.0°C on many days during November to March.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 3,280 mg/L Mar. 7; minimum daily mean, 14 mg/L Sept. 28.
SEDIMENT LOADS: Maximum daily, 9,740 tons (8,840 megagrams) Mar. 7; minimum daily, 2.0 tons (1.8 megagrams) Sept. 28.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)
OCT											
19...	0900	75	1110	8.2	8.0	460	140	62	74	77	1.6
NOV											
16...	0930	70	1170	8.1	.0	520	190	70	83	81	1.6
DEC											
18...	1130	48	1460	8.0	.0	630	280	86	100	130	2.5
JAN											
16...	1130	28	1110	7.9	.0	470	140	67	73	75	1.5
FEB											
12...	1100	54	1130	8.1	.0	460	140	64	72	78	1.6
MAR											
07...	1730	1510	1070	7.3	.5	300	230	50	42	110	2.8
APR											
10...	1330	101	2800	8.3	5.0	970	700	110	170	320	4.5
MAY											
24...	1246	122	668	8.2	15.5	280	95	53	37	39	1.0
JUN											
29...	1515	241	582	8.3	--	240	40	40	34	32	.9
AUG											
05...	1715	380	604	8.3	21.5	280	55	46	39	32	.8
SEP											
14...	0940	93	902	8.3	9.5	410	96	57	64	56	1.2

06088300 MUDDY CREEK NEAR VAUGHN, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)
OCT 19...	2.7	320	270	9.7	.9	5.5	700	.95	142	3.3	.01
NOV 16...	2.4	330	300	15	.9	11	769	1.05	145	4.6	.00
DEC 18...	2.9	350	490	15	1.0	9.6	1070	1.46	139	5.8	.01
JAN 16...	2.0	330	260	9.8	.9	10	715	.97	54.1	4.1	.01
FEB 12...	2.3	320	280	13	.9	9.5	734	1.00	67.4	5.0	.01
MAR 07...	8.6	68	430	15	.3	6.3	722	.98	2940	4.3	.17
APR 10...	5.9	270	1300	36	.8	5.1	2150	2.92	586	8.6	.02
MAY 24...	2.0	190	160	5.1	.6	3.7	420	.57	138	1.2	.01
JUN 29...	2.4	200	110	4.7	.5	5.9	356	.48	232	1.4	.02
AUG 05...	3.3	220	99	7.2	.5	7.3	371	.50	381	1.0	.03
SEP 14...	2.1	310	190	6.6	.9	6.1	578	.79	145	2.0	.03

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	900	1030	1300	1510	1180	1280	2210	1490	611	595	572	659
2	902	1030	1400	1360	1150	1300	2260	1460	625	571	574	581
3	931	1040	1460	1270	1120	1360	2140	1460	552	600	580	615
4	905	1050	1410	---	1140	1340	1980	1430	535	603	591	---
5	915	1060	1360	---	---	1100	2060	921	538	577	610	636
6	925	1040	1350	1150	1110	1020	2060	1430	---	685	620	---
7	937	1040	1350	1180	---	865	2700	1370	580	600	627	570
8	938	1050	1410	1150	1130	1050	3930	---	540	596	622	604
9	935	---	1380	1120	1110	1180	3210	1440	603	617	619	659
10	949	---	1430	1110	1140	1370	2820	1450	627	640	616	780
11	955	1270	1370	1100	---	1560	4100	1430	660	627	620	---
12	1090	1110	1300	1080	---	1610	2920	1410	770	641	617	872
13	1030	1060	1340	1080	---	1580	2590	789	796	658	618	882
14	1030	1070	1360	1080	---	1610	2160	644	838	639	604	897
15	990	1130	1490	1090	---	1740	2040	769	870	624	593	881
16	1000	1150	1340	1090	---	1770	1870	788	851	602	601	909
17	1020	1120	1380	1120	1220	1700	1760	659	868	654	636	903
18	995	1180	1540	1110	1210	---	1640	660	827	683	631	---
19	1040	1210	1350	1120	1210	---	1920	671	659	744	628	903
20	1000	1140	1310	1070	1230	1800	2180	701	569	698	617	908
21	1000	1150	1280	---	1220	1660	2210	692	555	690	603	910
22	992	1150	1260	1130	1230	1580	---	758	631	711	597	970
23	992	1140	1270	1110	1230	1580	1820	597	639	671	---	1000
24	1020	1160	1260	---	1220	1620	2440	586	640	690	592	---
25	1000	1170	1290	1140	1180	1600	4700	668	639	---	573	991
26	997	1180	1330	1130	1130	1720	3320	641	652	690	567	1010
27	995	1190	---	1110	1180	1700	2550	691	695	646	582	1020
28	1010	1240	---	1100	1270	1980	2200	619	681	671	601	1020
29	---	1180	1420	1070	---	1640	1920	551	575	637	606	1040
30	1040	1270	1520	1100	---	1930	1880	559	588	584	611	1040
31	1030	---	1620	1110	---	1990	---	601	---	569	615	---
MEAN	982	1130	1380	1140	1180	1530	2470	933	663	640	605	852

WTR YR 1979 MEAN 1120 MAX 4700 MIN 535

06088300 MUDDY CREEK NEAR VAUGHN, MT--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13.0	9.0	.0	.5	.0	.0	4.0	9.0	16.5	16.0	18.5	12.0
2	12.0	10.0	.0	.5	.0	.0	5.5	12.0	18.5	16.0	18.0	19.5
3	9.0	9.0	.0	.5	.0	.0	5.5	9.0	20.0	17.0	16.0	13.0
4	9.5	8.5	.0	---	.0	.0	4.5	11.0	16.0	16.0	19.0	---
5	11.0	4.5	.0	---	.0	.0	7.0	9.0	16.5	22.0	20.0	10.0
6	11.0	4.5	.0	.5	.0	.0	9.0	8.5	---	21.0	19.0	---
7	10.5	8.5	.0	.0	.0	1.5	9.5	8.5	9.0	24.0	23.0	19.0
8	12.0	8.0	.0	.0	.0	1.0	5.5	---	18.5	18.5	22.0	18.0
9	12.0	---	.0	.0	.0	1.5	7.5	8.5	20.0	21.0	23.0	17.0
10	12.0	---	.0	.0	.0	1.5	5.5	11.0	17.0	19.0	23.0	12.0
11	10.5	1.0	.0	.0	.0	1.5	5.0	14.0	14.0	20.5	19.0	---
12	9.5	.5	.0	.0	.0	1.5	6.5	14.0	15.0	17.5	20.0	11.0
13	8.5	.5	.0	.0	.0	2.0	5.5	10.0	15.0	20.5	17.0	9.0
14	11.0	.5	.0	.0	.0	2.5	8.5	11.5	13.5	20.0	19.5	17.5
15	8.5	.5	.0	.0	.0	3.0	9.5	16.0	19.5	18.0	21.5	18.5
16	9.5	.5	.0	.0	.0	4.5	12.0	16.0	18.0	20.0	19.5	12.0
17	9.0	.0	.0	.0	.0	5.0	11.5	15.0	15.5	24.0	20.0	10.0
18	11.0	.0	.0	.0	.0	---	7.0	17.0	13.0	22.0	20.0	---
19	11.0	.5	.0	.0	.0	---	10.0	17.5	14.0	22.5	18.5	11.5
20	11.0	.0	.0	.0	.0	5.5	6.5	14.0	11.0	24.5	18.5	10.0
21	7.5	.5	.0	---	.0	6.0	10.5	18.5	13.0	24.5	19.5	17.0
22	8.0	.5	.0	.0	.0	7.0	---	17.5	14.5	20.0	20.0	15.0
23	8.0	.0	.0	.0	.0	7.0	4.5	16.0	17.5	22.5	---	14.0
24	7.0	.0	.0	---	.0	7.5	6.0	16.5	17.0	18.0	15.5	---
25	7.5	.0	.0	.0	.0	2.0	9.0	22.0	15.0	---	18.0	9.0
26	8.0	.0	.0	.0	.0	3.5	11.0	23.0	17.0	18.5	18.0	13.0
27	9.0	.0	.0	.0	.0	2.0	15.0	18.0	18.0	23.5	16.0	10.0
28	8.5	.0	.0	.0	.0	3.0	14.0	16.0	17.5	20.0	17.5	14.0
29	---	.0	.0	.0	---	6.0	12.5	13.0	24.5	20.0	19.0	11.0
30	5.5	.0	.0	.0	---	6.5	11.5	16.0	18.0	20.0	16.0	11.0
31	7.0	---	.0	.0	---	2.0	---	15.5	---	17.5	16.5	---
MEAN	9.5	2.5	.0	.0	.0	3.0	8.5	14.0	16.5	20.0	19.0	13.5

WTR YR 1979 MEAN 9.0 MAX 24.5 MIN .0

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPERATURE (DEG C) (00010)	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70340)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)	SED. SUSP. FALL DIAM. % FINER THAN .125 MM (70343)	SED. SUSP. FALL DIAM. % FINER THAN .250 MM (70344)
MAR 07...	1405	.5	1300	4130	14500	36	52	65	96	100

06088300 MUDDY CREEK NEAR VAUGHN, MT--Continued

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	48	11	32	5.2	58	7.0	61	5.1	65	4.6	69	8.4
2	56	14	31	5.0	58	6.3	77	6.9	70	5.1	65	7.1
3	50	12	31	4.9	68	8.3	69	6.1	70	5.3	56	6.0
4	39	9.0	31	4.8	55	6.7	63	5.4	74	5.6	107	19
5	32	7.3	31	4.8	57	6.2	60	5.0	58	4.7	236	64
6	30	6.7	32	4.8	39	4.2	57	4.8	60	4.9	1230	1160
7	31	7.1	31	4.7	36	3.9	59	5.1	60	5.0	3200	9740
8	32	7.1	30	4.5	52	5.9	65	5.8	60	5.2	2180	4710
9	27	5.6	35	4.9	61	7.4	58	5.2	65	5.6	1900	2570
10	24	4.8	66	8.9	36	4.9	60	5.2	64	5.7	2400	2510
11	24	4.7	94	13	37	5.2	54	4.4	73	6.5	1490	1710
12	26	5.3	68	9.2	54	7.9	47	3.8	76	7.0	2400	2330
13	35	7.0	45	6.3	45	6.7	43	3.5	97	9.2	1350	795
14	31	6.4	46	6.7	50	7.3	40	3.0	157	15	795	322
15	28	5.7	47	7.6	55	7.4	43	3.5	136	12	598	215
16	39	8.2	48	9.1	56	7.9	74	5.6	116	9.4	476	178
17	38	8.1	50	9.5	40	5.6	82	6.2	98	7.6	522	200
18	39	8.5	50	8.8	32	4.1	81	6.3	96	8.0	356	98
19	26	5.2	54	8.7	66	8.0	75	6.1	106	8.6	252	58
20	26	5.0	54	7.3	76	9.2	76	6.8	99	7.8	232	45
21	29	5.6	51	6.2	77	9.6	71	6.7	96	7.3	181	34
22	28	5.4	49	6.0	79	10	65	6.1	97	7.1	175	31
23	26	4.8	53	7.2	85	11	83	7.8	94	6.9	166	28
24	26	4.6	39	5.3	74	10	71	6.3	93	6.5	176	30
25	35	6.2	32	3.9	77	9.4	69	5.8	102	13	165	28
26	41	7.3	31	3.8	74	8.0	76	6.2	117	13	163	27
27	40	7.0	31	3.8	72	7.8	84	6.6	67	9.0	202	31
28	38	6.7	33	4.0	68	6.8	84	6.4	66	8.6	223	33
29	36	6.4	49	6.4	59	5.4	75	5.5	---	---	192	30
30	35	6.0	69	9.3	61	5.1	69	4.7	---	---	160	23
31	34	5.7	---	---	68	5.5	67	4.7	---	---	122	17
TOTAL	---	214.4	---	194.6	---	218.7	---	170.4	---	214.4	---	27057.5

DAY	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	97	13	55	9.5	432	196	478	323	396	452	83	48
2	129	17	54	8.7	926	523	445	326	375	364	88	54
3	125	16	49	7.7	1310	849	440	316	347	359	92	54
4	99	13	48	7.4	818	523	784	669	258	250	72	40
5	90	12	508	245	562	334	735	661	240	240	68	37
6	80	11	107	20	490	253	1030	1120	281	258	66	30
7	214	43	61	9.6	358	188	740	675	191	154	76	44
8	308	75	52	7.7	380	207	460	381	186	130	73	40
9	274	64	49	6.9	329	154	391	302	161	110	66	28
10	456	135	49	6.5	197	71	403	295	182	134	61	19
11	1170	433	48	6.0	291	116	395	298	195	158	55	15
12	470	105	51	7.4	216	66	322	242	193	163	51	13
13	128	25	101	31	194	49	288	212	173	139	53	13
14	71	13	110	47	133	29	326	232	179	149	48	11
15	41	7.3	52	17	117	26	405	307	231	216	36	7.7
16	53	9.2	250	88	114	23	387	306	180	150	42	6.7
17	42	7.5	381	151	562	231	253	161	143	98	38	7.6
18	50	9.5	418	174	2290	2250	209	112	143	92	48	9.7
19	41	7.3	265	97	2000	2240	174	86	155	106	52	11
20	37	6.2	182	55	1690	2410	207	111	125	89	43	8.7
21	37	5.6	166	48	1660	2360	245	148	98	66	26	5.0
22	37	5.7	121	27	1220	1240	208	125	104	69	22	3.6
23	62	11	233	79	859	786	238	161	125	91	17	2.6
24	90	23	247	82	608	460	175	111	144	108	20	3.2
25	409	140	266	74	556	368	177	123	144	113	29	4.4
26	110	27	313	100	524	300	238	180	157	125	31	4.7
27	47	9.6	192	55	488	252	236	168	141	110	23	3.4
28	38	7.2	295	119	409	200	245	203	143	99	14	2.0
29	43	7.5	348	149	425	258	497	552	89	57	18	2.5
30	43	7.3	479	222	454	308	511	636	92	58	27	3.9
31	---	---	422	178	---	---	436	555	83	50	---	---
TOTAL	---	1266.1	---	2135.4	---	17300	---	10117	---	4775	---	541.1

TOTAL LOAD FOR YEAR: 64204.6 TONS.

06088500 MUDDY CREEK AT VAUGHN, MT

LOCATION.--Lat 47°33'42", long 111°32'33", near center of S½NE¼ sec.24, T.21 N., R.1 E., Cascade County, Hydrologic Unit 10030104, on right bank, 30 ft (9.1 m) upstream from old highway bridge at Vaughn, 1.5 mi (2.4 km) upstream from mouth.

DRAINAGE AREA.--314 mi² (813 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1925 to February 1926, April 1934 to September 1968, July 1971 to current year.

REVISED RECORDS.--WSP 856: 1937. WSP 1509: 1934-35, 1941(M). WSP 1559: 1956. WSP 1629: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 3,337.64 ft (1,017.313 m) National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). May 21, 1925, to Feb. 8, 1926, nonrecording gate at site 500 ft (152 m) downstream at different datum. Apr. 19, 1925, to Sept. 30, 1955, at present site at datum 1.00 ft (0.305 m) higher. May 18, 1955, to Apr. 25, 1960, and Sept. 24, 1962, to Sept. 30, 1968, auxillary crest-stage gage. Oct. 1, 1955, to Sept. 30, 1968, nonrecording gage at bridge 30 ft (9.1 m) downstream at present datum.

REMARKS.--Water-discharge records fair except those for winter period, which are poor. Natural flow increased by wastage from Sun River Canal and by return flow from irrigation. Diversions for irrigation of about 700 acres (2.83 km²) above station. Pumped diversions from Muddy Creek above station is SW¼ sec.2, T.22 N., R.1 W., to supplement water supply for Benton Lake Wildlife Refuge are listed below.

AVERAGE DISCHARGE.--42 years (1934-68, 1971-79), 127 ft³/s (3,597 m³/s), 92,010 acre-ft/yr (113 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,600 ft³/s (215 m³/s) June 4, 1953, gage height, 17.7 ft, (5.40 m), present datum, from floodmarks, from rating curve extended above 3,000 ft³/s (85.0 m³/s) on basis of slope-area measurement of peak flow; minimum, 2.0 ft³/s (0.057 m³/s) Mar. 16, 17, 1972, gage height, 1.20 ft (0.366 m), result of ice jams upstream.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1908 reached a stage of about 24 ft (7.3 m), present datum (discharge not determined); flood in June 1932 reached a stage of about 19 ft (5.8 m), present datum (discharge not determined); from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 15.63 ft (4.764 m) Mar. 8 (discharge not determined); minimum daily discharge, 29 ft³/s (0.82 m³/s) Feb. 24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	134	68	52	35	30	52	61	71	251	343	462	294
2	132	67	47	37	31	48	63	67	294	369	437	330
3	129	66	52	38	32	45	56	65	357	341	462	325
4	126	66	52	37	34	70	58	63	366	399	455	310
5	122	68	45	35	34	120	56	142	350	425	469	318
6	122	69	45	35	34	400	59	102	334	495	488	314
7	126	71	46	36	35	1200	76	71	299	437	399	318
8	127	64	50	37	36	1000	90	61	327	391	345	305
9	120	60	52	37	36	700	97	57	290	380	318	237
10	113	58	56	36	37	450	129	54	226	345	327	182
11	84	58	60	35	38	500	153	49	230	339	378	156
12	82	58	52	35	38	400	102	47	166	339	399	150
13	85	58	62	34	39	300	83	112	138	336	406	159
14	85	60	62	32	40	190	81	161	126	301	425	145
15	82	65	58	31	38	158	75	145	112	336	443	146
16	84	70	60	31	36	161	73	198	118	369	421	130
17	85	66	60	31	34	168	73	237	176	303	362	120
18	90	65	55	33	34	132	78	253	439	247	321	120
19	85	62	50	35	35	106	78	234	552	213	350	120
20	82	58	50	36	34	90	69	201	647	237	364	120
21	80	52	53	38	32	90	65	178	609	277	364	115
22	82	52	56	40	31	85	64	142	501	277	355	110
23	80	58	56	40	30	78	78	164	448	321	393	95
24	77	58	56	38	29	81	93	196	386	305	421	90
25	76	54	52	36	35	80	128	166	341	352	441	90
26	78	50	45	35	45	73	108	166	280	350	417	88
27	75	50	45	34	55	76	87	156	251	341	393	86
28	74	50	40	33	54	67	78	209	243	339	376	84
29	74	53	38	31	---	77	73	243	263	452	325	82
30	77	56	36	30	---	72	69	271	318	533	332	80
31	72	---	34	30	---	67	---	230	---	522	318	---
TOTAL	2940	1808	1587	1061	1016	7136	2453	4511	9418	11014	12166	5219
MEAN	94.8	60.3	51.2	34.9	36.3	230	81.8	146	314	355	392	174
MAX	134	71	62	40	55	1200	153	271	647	533	488	330
MIN	72	50	34	30	29	45	56	47	112	213	318	80
AC-FT	5830	3590	3150	2140	2020	14150	4870	8950	18680	21850	24130	10350
(†)	0	0	0	0	0	0	0	0	0	0	68	0

CAL YR 1978 TOTAL 60333 MEAN 165 MAX 1600 MIN 26 AC-FT 119700
WTR YR 1979 TOTAL 60349 MEAN 165 MAX 1200 MIN 29 AC-FT 119700

† Diversions, in acre-feet, to Benton Lake, furnished by Fish and Wildlife Service.

06088500 MUDDY CREEK AT VAUGHN, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1968, 1971 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1967 to September 1968, July 1972 to current year.
WATER TEMPERATURES: October 1967 to September 1968, July 1971 to current year.
SUSPENDED-SEDIMENT DISCHARGE: July 1971 to current year.

REMARKS.--Flow affected by ice during most of winter months.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 5,400 micromhos Apr. 30, 1976; minimum daily, 470 micromhos June 8, 1974.
WATER TEMPERATURES: Maximum daily, 25.5°C June 18, 1974, June 28, 1979; minimum daily, 0.0°C on many days during winter periods.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 15,900 mg/L May 7, 1975; minimum daily mean, 10 mg/L Feb. 10, 1973.
SEDIMENT LOADS: Maximum daily, 109,000 tons (98,900 megagrams) May 7, 1975; minimum daily, 0.68 ton (0.62 megagrams) Feb. 10, 1973.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 4,010 micromhos Apr. 26; minimum daily, 508 micromhos May 30.
WATER TEMPERATURES: Maximum daily, 25.5°C June 28; minimum daily, 0.0°C on many days during November to March.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 5,390 mg/L Mar. 7; minimum daily mean, 30 mg/L Sept. 27, 28.
SEDIMENT LOADS: Maximum daily, 17,500 tons (15,900 megagrams) Mar. 7; minimum daily, 6.3 tons (5.7 megagrams) Dec. 15.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)
OCT											
19...	1050	65	1100	8.5	6.0	450	150	63	72	81	1.7
NOV											
16...	1110	70	1240	8.0	.0	540	210	79	83	88	1.7
DEC											
18...	1245	55	1410	8.0	.0	600	250	84	95	120	2.1
JAN											
16...	1400	31	1090	7.9	.0	480	150	72	74	82	1.6
FEB											
12...	1345	36	1200	8.1	.0	470	250	70	71	84	1.7
MAR											
07...	1215	1200	1090	7.4	.5	320	230	63	39	110	2.7
APR											
10...	1545	124	2580	8.3	5.5	710	460	120	100	320	5.2
MAY											
25...	0845	159	717	8.2	15.0	290	100	56	37	44	1.1
JUN											
20...	1840	688	625	8.2	18.0	250	69	47	32	40	1.1
AUG											
16...	1100	423	644	8.3	18.5	280	52	52	37	29	.8
SEP											
14...	1320	151	856	8.4	16.0	340	73	55	50	50	1.2

06088500 MUDDY CREEK AT VAUGHN, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LINITY (MG/L AS CACO3) (00410)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P) (00666)
OCT 19...	2.6	300	290	10	1.0	5.4	708	.96	162	.86	.01
NOV 16...	2.5	330	340	15	.9	11	825	1.12	156	4.3	.01
DEC 18...	2.9	350	460	13	.9	9.3	1020	1.39	151	4.6	.01
JAN 16...	3.1	330	280	9.4	.9	10	747	1.02	62.5	3.8	.01
FEB 12...	2.5	220	330	13	.9	9.3	734	1.00	75.3	4.7	.02
MAR 07...	6.8	85	430	16	.4	6.2	745	1.01	2410	5.0	.10
APR 10...	7.0	250	980	34	.8	5.3	1750	2.38	586	6.8	.07
MAY 25...	2.0	190	180	5.4	.6	4.4	449	.61	193	1.1	.02
JUN 20...	2.6	180	130	4.6	.5	5.8	376	.51	698	1.2	.02
AUG 16...	1.8	230	120	4.2	.5	6.7	395	.54	451	1.3	.02
SEP 14...	2.4	270	160	5.3	.7	5.8	497	.68	203	1.2	.00

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	865	1080	1300	1680	1180	1370	1980	1600	593	655	618	653
2	878	1090	1460	1660	1240	1390	1900	1610	637	623	639	661
3	875	1070	1490	1460	1220	1410	1840	1610	561	645	628	633
4	887	1090	1520	1150	1190	1410	1830	1530	538	---	638	---
5	872	1090	1450	---	1200	1210	1940	830	534	614	657	652
6	872	1090	1410	1290	1210	1060	1940	1050	564	624	639	---
7	875	1080	1430	1280	1200	1140	2050	1450	548	639	651	654
8	859	1060	1400	1270	1270	1260	2580	---	534	635	657	635
9	867	1050	1450	1270	1200	1150	4000	1560	528	637	665	648
10	876	---	1450	1190	1180	1230	2570	1520	561	655	669	733
11	983	1340	1470	1180	---	1460	3240	1490	599	652	630	---
12	975	1330	1440	1170	1180	1550	3320	1580	---	661	638	855
13	1160	1160	1350	---	1210	1530	2720	812	756	680	650	859
14	1070	1150	1370	1150	1200	1670	2390	860	741	642	643	849
15	1050	1160	1390	1140	1230	1750	2170	800	837	641	645	862
16	1020	1220	1550	1150	1250	1820	1920	663	789	612	642	869
17	1050	1160	1420	1160	1290	1800	1790	662	815	660	645	870
18	1040	1180	1440	1180	1360	---	1630	586	866	690	648	---
19	1070	1290	1510	1160	1270	---	1830	586	676	751	653	862
20	1080	1230	1440	1160	1290	1800	1960	611	589	753	646	867
21	1080	1230	1350	1150	1290	1830	2310	653	592	682	642	872
22	1040	1210	1310	1210	1290	1750	---	671	643	709	650	887
23	1040	1210	1330	1190	1300	1750	1960	749	635	685	---	912
24	1060	1210	1290	1190	1340	1750	1970	611	635	691	643	926
25	1070	1240	1300	1270	1320	1680	3610	681	648	---	635	931
26	1050	1230	1380	1230	1260	1600	4010	609	665	695	613	961
27	1070	1250	1380	1180	889	1630	2650	637	678	689	612	952
28	1060	1280	1340	1210	1250	1740	2370	539	669	693	619	995
29	1060	1280	1470	1250	---	1760	2080	532	581	663	634	993
30	1080	1310	1560	1160	---	2010	1930	508	600	611	642	1010
31	1080	---	1580	1140	---	2140	---	557	---	608	650	---
MEAN	997	1190	1420	1240	1230	1570	2360	939	642	662	641	831

WTR YR 1979 MEAN 1140 MAX 4010 MIN 508

06088500 MUDDY CREEK AT VAUGHN, MT--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12.5	8.0	.0	.0	.0	.0	2.0	10.0	16.5	19.5	19.5	14.0
2	12.5	9.0	.0	.0	.0	.0	6.5	13.5	17.5	16.0	21.0	19.5
3	10.0	9.5	.0	.0	.0	.0	6.5	11.0	19.0	18.0	17.0	15.0
4	10.0	8.0	.0	.0	.0	.0	5.0	13.0	17.0	---	19.0	---
5	11.5	5.0	.0	.0	.0	.0	7.0	8.5	16.0	23.0	21.0	12.0
6	11.0	4.5	.0	.0	.0	2.5	9.0	9.0	14.0	20.5	19.0	---
7	11.5	9.0	.0	.0	.0	1.5	9.0	9.5	12.5	20.0	23.0	18.5
8	12.0	8.0	.0	.0	.0	1.0	6.5	---	12.5	19.5	23.0	19.5
9	13.0	.5	.0	.0	.0	1.0	9.0	9.5	18.0	21.5	21.0	15.5
10	12.0	---	.0	.0	.0	1.5	5.5	13.0	18.0	20.5	22.0	13.5
11	11.0	.5	.0	.0	.0	1.5	5.5	15.0	21.0	20.0	20.0	---
12	9.0	.5	.0	.0	.0	1.0	8.5	15.5	---	18.0	20.5	15.0
13	8.5	.0	.0	.0	.0	1.5	8.0	11.5	20.5	19.0	20.0	9.5
14	10.0	.0	.0	.0	.0	2.5	10.0	13.0	21.0	18.5	19.5	19.5
15	11.0	.0	.0	.0	.0	3.5	11.0	17.5	19.0	20.0	19.5	17.5
16	10.5	.0	.0	.0	.0	4.0	14.0	16.0	18.0	19.5	20.5	14.0
17	9.0	.0	.0	.0	.0	4.5	14.0	15.5	17.0	22.5	20.0	11.5
18	11.0	.5	.0	.0	.0	---	9.5	16.0	17.0	23.5	20.0	---
19	10.0	.0	.0	.0	.0	---	10.5	17.0	17.5	24.0	19.0	17.5
20	12.0	.0	.0	.0	.0	6.5	8.5	15.0	15.5	24.5	19.0	12.5
21	8.0	.5	.0	.0	.0	6.5	13.0	17.5	19.5	23.5	19.0	17.0
22	8.0	.5	.0	.0	.0	7.5	---	19.5	21.5	21.5	21.0	16.5
23	8.0	.0	.0	.0	.0	7.0	5.0	18.0	19.5	24.0	---	15.5
24	7.0	.0	.0	.0	.0	7.5	7.0	18.0	18.5	19.0	16.5	18.0
25	7.0	.0	.0	.0	.0	4.0	9.5	21.0	17.5	16.0	17.0	17.5
26	8.0	.0	.0	.0	.0	3.0	11.5	20.5	18.5	18.5	14.5	13.5
27	7.5	.0	.0	.0	.0	2.0	15.0	19.0	20.0	21.5	18.0	17.0
28	8.5	.0	.0	.0	.0	4.0	15.5	16.0	25.5	20.0	17.5	15.0
29	7.0	.0	.0	.0	---	6.5	14.0	13.5	23.0	19.0	18.0	15.5
30	6.0	.0	.0	.0	---	5.5	14.5	14.0	17.0	20.5	17.5	12.0
31	6.0	---	.0	.0	---	2.0	---	15.5	---	20.5	16.5	---
MEAN	9.5	2.0	.0	.0	.0	3.0	9.5	14.5	18.0	20.5	19.5	15.5

WTR YR 1979 MEAN 9.5 MAX 25.5 MIN .0

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPERATURE (DEG C) (00010)	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70340)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)	SED. SUSP. FALL DIAM. % FINER THAN .125 MM (70343)	SED. SUSP. FALL DIAM. % FINER THAN .250 MM (70344)	SED. SUSP. FALL DIAM. % FINER THAN .500 MM (70345)
APR											
10...	1710	5.5	125	1220	412	34	53	78	94	100	--
JUN											
20...	1830	18.0	682	4360	8030	44	68	78	96	99	100

06088500 MUDDY CREEK AT VAUGHN, MT--Continued

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	166	60	83	15	93	13	87	8.2	60	4.9	71	10
2	132	47	83	15	65	11	63	6.3	45	3.8	77	10
3	115	40	79	14	117	16	63	6.5	64	5.5	84	10
4	130	44	171	30	95	13	74	7.4	66	6.1	101	19
5	106	35	100	18	92	11	82	7.7	63	5.8	182	59
6	107	35	92	17	92	11	91	8.6	65	6.0	748	808
7	123	42	106	20	74	9.2	82	8.0	69	6.5	5390	17500
8	109	37	100	17	71	9.6	61	6.1	51	5.0	4400	11900
9	95	31	103	17	72	10	50	5.0	54	5.2	2860	5410
10	97	30	92	14	64	9.7	38	3.7	48	4.8	2750	3340
11	80	18	120	18	65	11	57	5.4	36	3.7	2530	3420
12	71	16	130	20	63	11	45	4.3	33	3.4	4070	4400
13	73	17	91	14	67	11	31	2.8	38	4.0	3960	3210
14	71	16	93	15	49	8.2	49	4.2	73	7.9	3740	1920
15	72	16	100	18	40	6.3	53	4.4	56	5.7	2420	1030
16	77	17	103	19	58	9.4	43	3.6	79	7.7	2310	1000
17	81	19	129	24	83	13	75	6.3	88	8.1	2200	998
18	122	30	93	16	70	10	66	5.9	70	6.4	1690	602
19	105	24	123	21	86	12	75	7.1	65	6.1	1320	378
20	106	23	114	18	93	13	62	6.0	67	6.2	937	228
21	108	23	84	12	81	12	62	6.4	71	6.1	678	165
22	105	23	82	12	76	11	83	9.0	83	6.9	713	164
23	110	24	55	8.6	80	12	59	6.4	88	7.1	553	116
24	130	27	58	9.1	64	9.7	64	6.6	83	6.5	616	135
25	98	20	78	11	62	8.7	55	5.3	88	8.3	607	131
26	103	22	95	13	69	8.4	49	4.6	96	12	645	127
27	111	22	111	15	69	8.4	58	5.3	126	19	680	140
28	106	21	89	12	63	6.8	84	7.5	101	15	582	105
29	99	20	86	12	73	7.5	94	7.9	---	---	551	115
30	91	19	106	16	79	7.7	53	4.3	---	---	449	87
31	80	16	---	---	98	9.0	52	4.2	---	---	367	66
TOTAL	---	834	---	480.7	---	319.6	---	185.0	---	193.7	---	57603

DAY	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	387	64	228	44	1020	691	1330	1230	1490	1860	357	283
2	359	61	200	36	1670	1330	1460	1450	1240	1460	380	339
3	398	60	189	33	2590	2500	1260	1160	1180	1470	410	360
4	372	58	196	33	2290	2260	1380	1490	1070	1310	379	317
5	279	42	2770	1420	1660	1480	1380	1580	816	1030	377	324
6	348	55	1070	330	1180	1060	2770	3900	848	1120	377	320
7	652	134	282	54	900	727	2150	2540	669	742	368	333
8	892	217	408	67	1090	962	1570	1660	662	617	397	327
9	1020	267	637	129	1030	806	1580	1620	660	567	335	214
10	1430	498	834	122	892	544	1380	1290	605	534	236	117
11	1980	818	521	69	871	541	990	906	712	727	149	63
12	917	253	176	22	695	311	1130	1030	680	733	96	39
13	459	103	1700	593	469	175	1110	1010	562	616	158	68
14	400	87	3150	1440	336	114	963	763	591	678	167	65
15	321	65	1560	611	196	59	797	723	740	885	173	68
16	292	58	1940	1040	260	83	1010	1010	685	779	166	56
17	329	65	1740	1110	945	449	565	479	518	506	167	61
18	310	65	1560	1070	3220	4060	712	475	524	454	86	29
19	290	61	1150	727	3400	5070	754	434	604	571	116	38
20	333	62	788	428	3960	6920	794	508	617	606	133	43
21	264	46	746	359	3760	6180	854	639	523	514	120	37
22	282	49	520	199	3340	4520	792	592	451	432	97	29
23	378	80	812	372	2870	3470	792	686	433	459	71	18
24	462	116	1150	609	2040	2130	781	643	458	521	52	13
25	1330	460	794	356	1760	1620	884	840	506	602	42	10
26	855	249	698	313	1600	1210	731	691	681	767	34	8.1
27	428	101	626	264	1660	1120	927	853	638	677	30	7.0
28	284	60	1100	621	1680	1100	990	906	606	615	30	6.8
29	270	53	1130	741	1490	1060	1560	1900	454	398	34	7.5
30	231	43	1170	856	1550	1330	1800	2590	426	382	49	11
31	---	---	991	615	---	---	1820	2570	390	335	---	---
TOTAL	---	4350	---	14683	---	53882	---	38188	---	22967	---	3613.4

TOTAL LOAD FOR YEAR: 197299.4 TONS.

06089000 SUN RIVER NEAR VAUGHN, MT

LOCATION.--Lat 47°31'37", long 111°29'05", in NW¼SE¼SW¼ sec.33, T.21 N., R.2 E., Cascade County, Hydrologic Unit 10030104, on right bank 3.7 mi (6.0 km) downstream from Muddy Creek, 3.6 mi (5.8 km) southeast of Vaughn, and at mile 14.6 (23.5 km).

DRAINAGE AREA.--1,854 mi^2 (4,802 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July to October 1897 (gage heights and discharge measurements only, published as "near Great Falls"), April 1934 to current year. Monthly discharge only for April 1934, published in WSP 1309.

REVISED RECORDS.--WSP 786: 1934. WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 3,317.12 ft (1,011.058 m) National Geodetic Vertical Datum of 1929. July 11 to Oct. 30, 1897, nonrecording gage at site 0.8 mi (1.3 km) upstream at different datum. Apr. 19 to Aug. 3, 1934, nonrecording gage at present site and datum.

REMARKS.--Water-discharge records good except those for winter period, which are poor. Flow regulated by Gibson, Pishkun, Willow Creek, and Nilan Reservoirs. Diversions for irrigation of about 110,000 acres (455 km^2) above station.

AVERAGE DISCHARGE.--45 years, 734 ft^3/s (20.79 m^3/s), 531,800 acre-ft/yr (656 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 53,500 ft^3/s (1,520 m^3/s) June 9, 1964, 42,200 ft^3/s (1,200 m^3/s) in main channel, plus 11,300 ft^3/s (320 m^3/s) in bypass channel, gage height, 23.4 ft (7.13 m), from floodmark; minimum, 20 ft^3/s (0.57 m^3/s) Apr. 24, 1944.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 1964 exceeded the stage of the June 1908 flood by about 3 ft (0.9 m) and is the highest since 1908, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,400 ft^3/s (153 m^3/s) May 28, gage height, 7.68 ft (2.341 m); maximum gage height, 8.08 ft (2.463 m) Mar. 8 (backwater from ice); minimum daily discharge, 150 ft^3/s (4.25 m^3/s) Nov. 11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	368	293	270	285	275	300	463	459	1920	577	691	445
2	368	288	260	270	280	310	457	501	1740	651	628	446
3	394	267	255	270	285	325	447	499	1590	644	664	462
4	394	281	250	275	290	340	445	480	1650	689	671	440
5	387	281	245	280	295	360	448	541	2550	754	626	435
6	389	278	245	280	300	370	453	708	3060	796	631	430
7	392	274	240	285	300	370	490	883	3030	730	557	430
8	384	277	240	290	300	370	525	901	2370	661	499	425
9	366	289	240	295	300	365	542	901	1770	663	463	362
10	348	220	240	300	295	360	687	973	1440	612	456	307
11	344	150	240	300	295	450	722	1080	1380	568	509	269
12	335	155	245	300	290	600	613	1090	1030	541	550	267
13	337	280	245	295	290	650	548	1160	796	521	618	265
14	337	315	245	290	290	700	515	1240	1110	542	632	270
15	334	335	240	290	290	720	499	1240	938	533	655	262
16	332	350	240	290	295	700	484	1230	580	566	636	255
17	325	345	240	295	300	690	481	1480	665	511	564	253
18	342	330	240	295	300	658	516	2010	1230	457	498	243
19	325	320	235	295	295	603	592	2360	1380	415	547	227
20	315	305	230	300	295	556	547	2680	1520	425	578	215
21	314	300	240	300	290	551	499	2880	1620	450	579	207
22	316	290	250	290	290	536	397	2840	1520	456	559	194
23	309	295	275	290	290	510	421	2560	1280	514	594	186
24	307	300	265	285	290	499	488	2230	819	499	602	183
25	306	310	295	280	290	507	547	2350	679	517	630	178
26	306	310	305	275	290	485	520	4110	611	544	632	176
27	303	305	310	275	290	495	499	4870	557	548	619	177
28	302	300	310	270	290	473	488	5350	556	533	596	164
29	302	300	305	270	---	503	456	4860	544	631	534	164
30	305	285	300	270	---	500	449	3510	536	734	500	177
31	296	---	295	270	---	491	---	2390	---	739	460	---
TOTAL	10484	8648	8055	8855	8180	15347	15236	60386	40471	18021	17980	8514
MEAN	338	288	260	286	292	495	508	1948	1349	581	580	284
MAX	394	350	310	300	300	720	722	5350	3060	796	691	462
MIN	296	150	230	270	275	300	397	459	536	415	456	164
AC-FT	20800	17150	15980	17560	16230	30440	30220	119800	80270	35740	35660	16890

CAL YR 1978 TOTAL 311015 MEAN 852 MAX 6030 MIN 145 AC-FT 616900
WTR YR 1979 TOTAL 220179 MEAN 603 MAX 5350 MIN 150 AC-FT 436700

06089000 SUN RIVER NEAR VAUGHN, MT--Continued

WATER-QUALITY RECORDS

LOCATION.--Samples collected at county bridge 1.8 mi (2.9 km) downstream from gaging station, 4.4 mi (7.1 km) southeast of Vaughn, 5.5 mi (8.8 km) downstream from Muddy Creek, and 7.5 mi (12.1 km) northwest of Great Falls.

PERIOD OF RECORD.--Water years 1969 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1968 to current year.
WATER TEMPERATURES: October 1968 to current year.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,610 micromhos Apr. 8, 1977, minimum daily, 214 micromhos June 8, 1970.
WATER TEMPERATURES: Maximum daily, 28.0°C Aug. 11, 27, 1969, Aug. 16, 1977; minimum daily, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,030 micromhos Apr. 25; minimum daily, 295 micromhos June 7.
WATER TEMPERATURES: Maximum daily, 27.5°C July 19, 21; minimum daily, 0.0°C on many days during November to March.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE (DEG C) (00010)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM ADSORPTION RATIO (00931)
OCT											
19...	0745	332	867	8.2	8.0	360	150	65	48	51	1.2
NOV											
15...	1635	335	872	8.2	.0	390	130	74	50	49	1.1
DEC											
18...	1400	240	958	8.0	.0	420	160	84	52	66	1.4
JAN											
16...	1615	290	713	7.8	.0	320	100	68	37	37	.9
FEB											
12...	1515	290	706	8.1	.0	300	170	63	34	35	.9
MAR											
07...	1115	370	975	7.6	.5	300	200	59	37	92	2.3
MAY											
02...	1530	537	851	8.2	15.0	340	120	60	43	63	1.5
31...	1045	2380	349	8.0	10.0	160	30	41	14	12	.4
JUN											
28...	1100	493	613	8.8	22.0	260	70	48	38	42	1.1
AUG											
02...	1330	637	652	8.4	22.0	280	61	53	36	34	.9
27...	1815	626	658	8.3	18.5	290	68	58	36	33	.8

DATE	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY (MG/L AS CACO3) (00410)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) (00631)	PHOSPHORUS, DISSOLVED (MG/L AS P) (00666)
OCT											
19...	2.5	210	230	10	.5	5.3	541	.74	485	.99	.00
NOV											
15...	2.1	260	210	5.1	.4	10	561	.76	507	1.5	.00
DEC											
18...	2.2	260	270	6.4	.4	7.6	651	.89	422	1.4	.01
JAN											
16...	2.0	220	160	5.0	.5	7.7	453	.62	355	.90	.01
FEB											
12...	1.6	130	170	4.1	.3	6.6	397	.54	311	.98	.01
MAR											
07...	5.9	96	360	16	.4	6.1	655	.89	654	4.7	.09
MAY											
02...	2.1	220	240	6.3	.4	4.1	560	.76	812	.66	.01
31...	1.3	130	48	1.5	.2	5.2	202	.27	1300	.15	.01
JUN											
28...	2.0	190	140	3.6	.4	4.3	391	.53	520	.58	.03
AUG											
02...	2.4	220	130	3.3	.5	6.5	401	.55	690	.72	.04
27...	1.8	220	150	3.3	.5	5.8	421	.57	712	.53	.01

06089000 SUN RIVER NEAR VAUGHN, MT--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	831	845	951	853	695	764	752	1350	364	647	675	670
2	849	835	992	818	684	804	883	893	388	655	681	668
3	773	832	1060	776	696	805	1300	944	306	635	688	667
4	752	840	1050	779	654	806	1090	903	410	629	684	672
5	752	852	967	735	782	795	905	882	320	638	687	688
6	762	839	967	737	699	886	906	718	303	637	683	640
7	762	838	967	848	715	674	1120	616	295	641	675	686
8	773	824	1010	745	654	1050	905	643	328	640	684	676
9	783	816	1040	762	712	862	892	617	360	654	697	700
10	809	945	982	745	698	872	934	594	386	646	686	757
11	773	1070	960	728	763	1100	1500	560	392	686	688	771
12	790	943	932	708	702	1100	1250	552	423	666	685	841
13	859	928	988	718	708	910	879	911	496	697	677	870
14	846	961	980	714	705	959	1040	610	390	684	670	889
15	820	917	998	717	735	867	1320	---	393	692	663	885
16	869	918	982	706	728	911	851	---	555	699	656	873
17	852	902	985	703	816	885	812	514	572	691	651	866
18	841	924	992	718	728	932	799	443	699	728	660	870
19	875	930	976	708	683	1000	886	416	725	731	682	869
20	910	1050	979	727	733	755	1350	402	590	740	669	875
21	882	1060	965	723	725	864	852	390	615	738	662	881
22	852	1020	928	703	787	823	947	390	621	718	659	901
23	850	995	966	714	742	822	933	508	482	742	660	930
24	871	914	848	709	746	762	1090	395	558	735	663	935
25	860	905	835	706	724	803	2030	389	499	732	667	940
26	843	906	823	706	712	823	1830	331	561	746	662	940
27	850	907	816	706	700	772	1310	339	622	731	647	950
28	849	921	850	708	742	835	1120	322	628	731	658	951
29	852	917	904	704	---	904	999	325	611	732	661	981
30	851	942	872	706	---	961	921	342	622	689	662	977
31	867	---	878	704	---	873	---	379	---	670	665	---
MEAN	829	917	948	733	720	872	1080	575	484	690	671	827

WTR YR 1979 MEAN 780 MAX 2030 MIN 295

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12.0	8.5	.0	.0	.0	.0	5.0	10.5	12.5	17.0	25.0	16.5
2	10.5	10.0	.0	.0	.0	.0	5.0	13.0	13.0	16.5	25.5	17.0
3	12.5	9.0	.0	.0	.0	.0	5.5	10.0	13.5	18.0	25.0	18.5
4	13.5	8.0	.0	.0	.0	.0	4.5	10.5	14.0	19.0	25.0	16.0
5	14.0	7.0	.0	.0	.0	.5	7.0	10.5	14.0	20.0	20.5	13.5
6	14.0	7.0	.0	.0	.0	1.0	10.0	10.0	11.0	21.0	21.0	13.5
7	14.5	9.5	.0	.0	.0	2.5	9.5	9.5	8.5	22.0	23.0	20.0
8	15.0	8.0	.0	.0	.0	2.0	8.5	10.0	11.0	21.5	22.5	17.5
9	14.0	6.0	.0	.0	.0	2.0	7.5	9.5	14.0	25.0	20.5	17.0
10	10.0	1.5	.0	.0	.0	2.0	7.0	10.0	17.5	24.0	17.5	15.5
11	14.0	2.0	.0	.0	.0	2.5	7.0	11.5	19.0	23.0	20.0	13.5
12	11.0	1.5	.0	.0	.0	1.0	7.5	12.0	21.5	22.5	18.0	14.0
13	10.5	1.0	.0	.0	.0	1.0	8.0	12.5	19.0	22.0	17.0	15.0
14	10.5	1.0	.0	.0	.0	1.0	8.5	12.0	19.0	21.0	17.5	12.5
15	9.5	.0	.0	.0	.0	4.0	10.0	---	19.0	21.0	20.0	13.5
16	11.0	.0	.0	.0	.0	4.0	14.0	---	14.0	24.0	19.5	16.5
17	11.0	.5	.0	.0	.0	3.5	13.0	13.0	15.5	25.0	19.0	14.5
18	12.0	.5	.0	.0	.0	4.5	10.0	14.0	17.5	25.5	20.5	14.0
19	13.0	.0	.0	.0	.0	4.0	11.5	13.0	15.5	27.5	19.5	14.0
20	13.5	.0	.0	.0	.0	4.5	11.5	15.5	12.5	27.0	20.0	13.5
21	10.0	.0	.0	.0	.0	4.5	12.0	13.0	15.5	27.5	19.0	14.5
22	10.0	.0	.0	.0	.0	7.0	10.0	14.0	15.5	23.0	20.0	12.5
23	10.0	.0	.0	.0	.0	6.5	6.5	17.0	16.5	25.0	19.5	13.0
24	7.0	.5	.0	.0	.0	8.0	7.0	16.0	17.0	21.5	18.5	13.0
25	8.0	.5	.0	.0	.0	7.0	9.0	14.0	19.0	18.0	16.0	11.5
26	9.0	.5	.0	.0	.0	7.5	11.5	16.0	20.5	21.5	17.0	14.5
27	9.0	.5	.0	.0	.0	7.0	14.0	13.0	19.0	25.5	20.0	11.0
28	11.0	.5	.0	.0	.0	5.0	14.0	11.0	18.0	22.0	16.5	15.5
29	7.5	.5	.0	.0	---	7.0	15.0	11.0	19.0	20.0	18.0	10.5
30	7.0	.5	.0	.0	---	6.0	13.5	11.0	20.0	25.0	22.0	12.0
31	8.0	---	.0	.0	---	4.0	---	12.0	---	25.5	17.0	---
MEAN	11.0	3.0	.0	.0	.0	3.5	9.5	12.0	16.0	22.5	20.0	14.5

WTR YR 1979 MEAN 9.5 MAX 27.5 MIN .0

06090300 MISSOURI RIVER NEAR GREAT FALLS, MT

LOCATION.--Lat 47°34'55", long 111°03'35", in NE¼NW¼ sec.14, T.21 N., R.5 E., Cascade County, Hydrologic Unit 10030102, on left bank 100 ft (30 m) downstream from Morony Dam, 12.6 mi (20.3 km) northeast of Great Falls, and at mile 2,105.6 (3,387.9 km).

DRAINAGE AREA.--23,292 mi² (60,326 km²).

PERIOD OF RECORD.--May to July 1953 (in WSP 1320-B), October 1956 to current year.

GAGE.--Water-stage recorder. Datum of gage is 2,809.21 ft (856.247 m) National Geodetic Vertical Datum of 1929. Prior to July 27, 1977, nonrecording gage at site 700 ft (213 m) downstream at same datum. October 1971 to July 27, 1977, discharges were obtained from the Montana Power Company at Rainbow Dam 7.05 mi (11.3 km) upstream. Prior to October 1971, Foxboro meters were used for determining discharge throught powerplant. Water-stage recorder on Morony Reservoir was used for determining head on taintor gates with datum of gage at National Geodetic Vertical Datum of 1929 (levels by Montana Power Company).

REMARKS.--Records fair. Several observations of water temperature were made during the water year. Flow regulated by 18 smaller irrigation reservoirs and powerplants (see p. 605-612), Clark Canyon Reservoir (see p. 42), and Canyon Ferry Reservoir (see p. 78). Diversions for irrigation of about 750,400 acres (3,040 km²) above station.

AVERAGE DISCHARGE.--23 years, 7,946 ft³/s (225.0 m³/s), 5,757,000 acre-ft/yr (7.10 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 72,000 ft³/s (2,040 m³/s) June 10, 1964 (from hydrographic comparison with nearby stations); minimum, about 1.0 ft³/s (0.028 m³/s) Apr. 16, 1962, powerplant shutdown; minimum daily, 1,760 ft³/s (49.8 m³/s) Apr. 16, 1961. Flood of June 10, 1964, is the highest since 1908.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 22,700 ft³/s (643 m³/s) May 26, gage height, 6.99 ft (2.131 m); minimum daily, 3,940 ft³/s (112 m³/s) Sept. 25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6710	7090	7690	6070	7140	6690	8300	10300	12100	6330	5440	4620
2	5350	7200	6660	6990	7320	6350	8000	10700	11600	6750	5390	4620
3	5130	6990	4530	7360	7220	6520	8100	9790	11000	6920	5390	4710
4	5480	7110	6230	7100	7270	6390	8200	10000	10700	6690	5390	5020
5	5870	6710	6180	7160	7640	6990	8500	10100	11400	6690	5440	4840
6	5690	6840	7030	7090	7990	8780	8300	11000	12000	6690	5390	4660
7	5420	6840	6690	6560	8200	11300	8500	10700	12400	6690	5300	4790
8	6000	6550	5350	6640	7960	12300	9000	9580	12200	6180	5110	4840
9	5750	6940	5250	6430	7810	11500	9600	9380	11400	5880	5160	4750
10	5590	6510	5830	6540	7870	9720	9600	9040	10800	5680	4980	4400
11	5240	6700	6590	6760	7790	9510	10000	8840	9860	5580	5210	4980
12	5160	6570	8000	6720	7440	9440	9900	8710	9860	5390	5110	4980
13	5040	6640	8320	7120	6300	9860	9600	8640	9310	5350	5160	4660
14	5240	6830	8000	6930	6260	10100	9300	9240	9310	5490	5250	4750
15	5630	6710	7150	7290	6500	8770	8900	9240	7940	5730	5440	4930
16	5170	6840	7510	7290	5910	8130	9100	9170	7210	5780	5390	5300
17	4960	6540	6920	7520	5800	8060	9400	9930	6750	4660	5160	4490
18	5530	6440	7210	7390	6420	8190	9800	11600	6800	5110	5160	4490
19	6000	5920	7320	7410	6660	6130	10200	11700	8450	5250	5110	4570
20	6410	5230	7010	7450	6520	8510	10200	12300	10000	5160	5680	4400
21	6220	4940	6840	7630	6470	8770	9720	13800	10800	5490	5830	4800
22	6240	6320	7040	7480	6270	8640	9930	13900	10400	5680	5210	5250
23	6720	7960	7680	7640	6230	8500	9650	13800	9860	5350	5490	5210
24	6390	8320	8200	7550	6010	8400	9650	13700	8450	5250	5440	4440
25	6340	7730	7710	7640	6020	8300	9720	13700	7330	5210	5020	3940
26	6610	7330	7320	7840	6550	8200	9650	15800	7030	5350	5440	4020
27	6870	6760	6450	7650	7220	8100	9720	17400	7030	5490	5390	4800
28	5800	7130	6520	7490	6960	8300	10200	17100	6430	5390	5250	5070
29	7080	7530	5650	7430	---	8500	10200	17300	6640	5300	5490	4360
30	6380	7500	5430	7650	---	8800	10200	14900	6490	5730	5160	4800
31	7220	---	6040	7420	---	8500	---	13300	---	5490	4790	---
TOTAL	183240	204720	210550	223240	193750	268250	280940	364660	281550	177730	164170	141490
MEAN	5911	6824	6792	7201	6920	8653	9365	11760	9385	5733	5296	4716
MAX	7220	8320	8320	7840	8200	12300	10200	17400	12400	6920	5830	5300
MIN	4960	4940	4530	6070	5800	6350	8000	8640	6430	4660	4790	3940
AC-FT	363500	406100	417600	442800	384300	532100	557200	723300	558500	352500	325600	280600

CAL YR 1978 TOTAL 3307870 MEAN 9063 MAX 20100 MIN 4530 AC-FT 6561000
WTR YR 1979 TOTAL 2694290 MEAN 7382 MAX 17400 MIN 3940 AC-FT 5344000

06090500 BELT CREEK NEAR MONARCH, MT

LOCATION.--Lat 47°12'27", long 110°55'53", in NW¼SE¼NW¼ sec.26, T.17 N., R.6 E., Cascade County, Hydrologic Unit 10030105, on left bank 0.4 mi (0.6 km) south of Riceville and 8.9 mi (14.3 km) northwest of Monarch.

DRAINAGE AREA.--368 mi^2 (953 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1951 to current year.

GAGE.--Water-stage recorder. Datum of gage is 3,962.25 ft (1,207.694 m) National Geodetic Vertical Datum of 1929 (levels by Army Corps of Engineers).

REMARKS.--Water-discharge records good except those for winter period, which are poor. No known regulation or diversion above station.

AVERAGE DISCHARGE.--28 years, 192 ft^3/s (5.437 m^3/s), 139,100 acre-ft/yr (172 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,000 ft^3/s (312 m^3/s) June 4, 1953, gage height, 10.12 ft (3.085 m), from rating curve extended above 4,100 ft^3/s (116 m^3/s) on basis of slope-area measurement of peak flow; no flow Feb. 21, Dec. 24, 1962, caused by ice jams upstream.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in 1908 was several feet lower than in 1953, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 600 ft^3/s (17.0 m^3/s) and maximums (*):

Date	Time	Discharge		Gage height		Date	Time	Discharge		Gage height	
		(ft^3/s)	(m^3/s)	(ft)	(m)			(ft^3/s)	(m^3/s)	(ft)	(m)
May 6	1600	668	18.9	3.32	1.012	June 19	2300	*1,640	46.4	*4.91	1.497
May 27	1300	1,420	40.2	4.61	1.405						

Minimum daily discharge, 35 ft^3/s (0.99 m^3/s) Dec. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	270	109	68	38	42	54	53	370	682	370	104	68
2	263	106	60	39	45	60	49	360	623	342	101	67
3	250	105	60	38	47	70	49	353	601	328	99	65
4	236	104	66	37	56	60	56	393	619	303	98	66
5	221	102	70	39	60	56	54	505	640	284	97	65
6	209	96	65	41	60	60	54	654	656	264	92	64
7	199	99	60	43	60	64	63	617	656	251	90	63
8	190	98	60	43	60	60	69	542	602	240	86	61
9	184	100	65	43	64	55	77	472	564	228	87	59
10	177	70	70	43	58	47	95	420	525	214	85	68
11	170	60	80	42	57	49	95	406	503	202	84	73
12	166	66	70	42	57	53	90	393	500	194	83	67
13	161	70	66	42	54	54	68	408	504	187	84	65
14	156	76	62	43	50	54	84	468	512	180	92	63
15	152	81	60	45	45	56	84	606	485	174	86	61
16	149	86	58	50	50	61	89	934	466	168	81	59
17	145	80	57	52	60	66	135	1160	444	160	78	58
18	147	70	57	54	56	66	290	1100	530	152	78	57
19	141	66	56	56	54	65	264	1030	1210	146	84	57
20	137	60	57	56	50	61	224	963	1490	145	83	57
21	134	60	60	56	48	59	199	944	1230	140	78	57
22	132	65	63	54	46	60	191	1060	1000	137	87	55
23	128	70	61	53	48	57	190	1170	837	141	78	55
24	127	76	58	52	58	57	181	1290	714	132	76	54
25	126	75	53	49	66	60	168	1340	625	129	83	54
26	122	70	46	47	62	52	174	1340	556	127	79	53
27	119	71	43	45	58	61	170	1370	526	121	84	53
28	118	70	40	43	56	61	201	1320	469	121	79	53
29	117	67	38	41	---	62	247	1120	423	121	74	52
30	113	68	35	40	---	60	299	930	401	115	71	52
31	102	---	36	41	---	56	---	788	---	109	68	---
TOTAL	5061	2396	1800	1407	1527	1816	4082	24826	19593	5925	2631	1801
MEAN	163	79.9	58.1	45.4	54.5	58.6	136	801	653	191	84.9	60.0
MAX	270	109	80	56	66	70	299	1370	1490	370	104	73
MIN	102	60	35	37	42	47	49	353	401	109	68	52
AC-FT	10040	4750	3570	2790	3030	3600	8100	49240	38860	11750	5220	3570

CAL YR 1978 TOTAL 106471 MEAN 292 MAX 2050 MIN 24 AC-FT 211200
WTR YR 1979 TOTAL 72665 MEAN 200 MAX 1490 MIN 35 AC-FT 144500

06090500 BELT CREEK NEAR MONARCH, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: July 1977 to current year.

INSTRUMENTATION.--Temperature recorder since July 5, 1977.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum, 20.0°C July 22, 1977; minimum, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum, 18.5°C July 19, 21, Aug. 5; minimum, 0.0°C on many days during November to April.

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	9.0	7.5	8.0	---	---	---	2.0	.0	.5	.0	.0	.0
2	8.0	6.0	7.0	---	---	---	.0	.0	.0	.0	.0	.0
3	7.0	5.0	6.0	---	---	---	.0	.0	.0	.0	.0	.0
4	7.0	6.0	6.5	---	---	---	.0	.0	.0	.0	.0	.0
5	6.5	4.0	5.5	---	---	---	.0	.0	.0	.0	.0	.0
6	---	4.5	---	---	---	---	.0	.0	.0	.0	.0	.0
7	---	---	---	---	---	---	.0	.0	.0	.0	.0	.0
8	---	---	---	---	---	---	.0	.0	.0	.0	.0	.0
9	---	---	---	---	---	---	.0	.0	.0	.0	.0	.0
10	---	---	---	---	---	---	.0	.0	.0	.0	.0	.0
11	---	---	---	---	---	---	.0	.0	.0	.0	.0	.0
12	---	---	---	---	---	---	.0	.0	.0	.0	.0	.0
13	---	---	---	---	---	---	.0	.0	.0	.0	.0	.0
14	---	---	---	---	---	---	.0	.0	.0	.0	.0	.0
15	---	---	---	.0	.0	.0	.0	.0	.0	.0	.0	.0
16	---	---	---	.0	.0	.0	.0	.0	.0	.0	.0	.0
17	---	---	---	.0	.0	.0	.0	.0	.0	.0	.0	.0
18	---	---	---	.0	.0	.0	.0	.0	.0	.0	.0	.0
19	---	---	---	.0	.0	.0	.0	.0	.0	.0	.0	.0
20	---	---	---	.0	.0	.0	.0	.0	.0	.0	.0	.0
21	---	---	---	.0	.0	.0	.0	.0	.0	.0	.0	.0
22	---	---	---	.0	.0	.0	.0	.0	.0	.0	.0	.0
23	---	---	---	.0	.0	.0	.0	.0	.0	.0	.0	.0
24	---	---	---	.0	.0	.0	.0	.0	.0	.0	.0	.0
25	---	---	---	.0	.0	.0	.0	.0	.0	.0	.0	.0
26	---	---	---	.0	.0	.0	.0	.0	.0	.0	.0	.0
27	---	---	---	.0	.0	.0	.0	.0	.0	.0	.0	.0
28	---	---	---	2.0	.5	1.0	.0	.0	.0	.0	.0	.0
29	---	---	---	2.0	1.5	2.0	.0	.0	.0	.0	.0	.0
30	---	---	---	2.0	1.0	1.5	.0	.0	.0	.0	.0	.0
31	---	---	---	---	---	---	.0	.0	.0	.0	.0	.0
MONTH	9.0	4.0	6.5	2.0	.0	.5	2.0	.0	.0	.0	.0	.0

06090500 BELT CREEK NEAR MONARCH, MT--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	.0	.0	.0	.0	.0	.0	3.0	.5	1.5	---	---	---
2	.0	.0	.0	.0	.0	.0	2.5	.0	1.0	---	---	---
3	.0	.0	.0	.0	.0	.0	2.5	.0	1.5	---	---	---
4	.0	.0	.0	.0	.0	.0	4.5	1.5	3.0	---	---	---
5	.0	.0	.0	.0	.0	.0	6.0	2.0	4.0	---	---	---
6	.0	.0	.0	.0	.0	.0	7.5	3.5	5.5	---	---	---
7	.0	.0	.0	1.5	.0	.5	7.5	3.5	5.0	---	---	---
8	.0	.0	.0	2.5	1.0	2.0	7.0	2.5	4.5	---	---	---
9	.0	.0	.0	3.0	1.5	2.0	6.0	3.0	4.0	---	---	---
10	.0	.0	.0	3.5	.5	2.0	4.0	2.0	2.5	---	---	---
11	.0	.0	.0	4.0	2.0	3.0	3.5	1.5	2.5	---	---	---
12	.0	.0	.0	4.0	2.5	3.0	5.0	1.5	3.5	---	---	---
13	.0	.0	.0	3.5	1.5	2.5	6.5	2.0	4.0	---	---	---
14	.0	.0	.0	4.0	1.0	2.5	6.5	2.0	4.5	---	---	---
15	.0	.0	.0	4.5	1.5	3.0	7.0	3.0	5.0	---	---	---
16	.0	.0	.0	5.0	2.5	3.5	9.0	3.0	6.0	---	---	---
17	.0	.0	.0	4.5	2.5	3.5	---	3.5	---	8.0	---	---
18	.0	.0	.0	4.0	2.5	3.5	---	---	---	8.5	4.5	6.0
19	.0	.0	.0	3.5	1.5	2.5	---	---	---	8.5	4.5	6.0
20	.0	.0	.0	3.5	1.0	2.5	---	---	---	8.5	3.5	6.0
21	.0	.0	.0	4.5	1.0	3.0	---	---	---	9.5	4.5	7.0
22	.0	.0	.0	4.0	2.0	3.0	---	---	---	10.0	4.5	7.0
23	.0	.0	.0	4.0	1.5	2.5	---	---	---	11.0	4.5	7.5
24	.0	.0	.0	5.5	2.0	4.0	---	---	---	8.5	5.5	7.0
25	.0	.0	.0	4.0	1.0	1.5	---	---	---	10.5	5.0	7.5
26	.0	.0	.0	1.0	.0	.5	---	---	---	10.5	5.0	---
27	.0	.0	.0	1.0	.0	.5	---	---	---	---	---	---
28	.0	.0	.0	4.5	.0	1.5	---	---	---	---	---	---
29	---	---	---	5.0	2.5	4.0	---	---	---	---	---	---
30	---	---	---	3.5	1.5	3.0	---	---	---	---	---	---
31	---	---	---	3.5	1.0	2.0	---	---	---	---	---	---
MONTH	.0	.0	.0	5.5	.0	2.0	9.0	.0	3.5	11.0	3.5	7.0

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	---	---	---	14.5	9.0	12.0	17.5	12.5	15.0	14.5	11.0	13.0
2	---	---	---	14.0	10.0	12.0	17.5	12.5	15.0	15.0	11.5	13.5
3	---	---	---	16.0	10.0	12.5	17.5	12.5	15.0	15.5	11.5	13.5
4	---	---	---	15.0	11.5	13.5	17.5	12.5	15.0	15.0	12.0	13.0
5	---	---	---	16.0	11.0	13.5	18.5	13.5	16.0	13.5	9.5	11.5
6	---	---	---	16.5	12.0	14.0	17.5	13.0	15.5	14.5	10.0	12.5
7	6.0	---	---	17.0	11.5	14.0	17.5	12.5	15.5	14.5	11.0	13.5
8	9.0	4.0	6.0	16.5	12.5	14.5	17.0	13.5	15.5	15.5	11.5	14.0
9	11.0	5.5	8.0	16.5	11.0	14.0	16.5	12.5	15.0	15.0	12.0	13.5
10	---	6.5	---	17.0	12.0	14.5	17.0	12.0	14.5	14.0	11.0	12.0
11	---	---	---	16.0	11.5	14.0	16.0	12.5	14.0	12.0	9.0	10.5
12	---	---	---	17.0	11.5	14.0	15.0	13.0	14.5	12.5	9.5	11.0
13	14.5	---	---	16.5	11.5	14.0	14.5	12.5	13.5	12.5	9.5	11.0
14	12.5	9.0	11.0	15.5	11.0	13.5	16.5	12.0	14.0	12.0	8.0	10.5
15	10.5	7.0	9.0	14.0	10.5	12.5	16.5	13.0	15.0	13.0	9.0	11.5
16	11.5	7.0	9.0	16.5	10.5	13.5	16.5	12.5	15.0	13.5	10.0	12.0
17	12.0	8.5	10.5	18.0	12.0	15.0	16.0	12.0	14.5	13.5	10.0	12.0
18	11.0	9.0	10.0	18.0	12.5	15.5	15.0	12.0	13.5	13.0	9.5	11.5
19	10.0	8.0	8.5	18.5	13.0	15.5	15.0	13.0	14.0	13.0	10.0	11.5
20	11.0	6.0	8.5	18.0	13.5	15.5	15.0	12.0	14.0	12.0	9.0	11.0
21	10.0	6.5	8.0	18.5	13.5	16.0	15.0	12.5	14.0	12.0	9.5	11.0
22	11.0	7.0	9.0	17.0	13.5	14.0	16.5	12.0	14.0	12.0	9.5	11.0
23	12.5	6.5	9.5	18.0	12.0	15.0	16.5	12.0	14.5	12.0	9.0	10.5
24	13.0	7.0	10.0	16.0	13.0	14.5	15.5	12.0	13.0	11.5	8.5	10.0
25	14.5	8.5	11.5	15.0	13.0	13.5	14.5	11.5	13.0	12.0	8.5	10.0
26	15.5	9.5	12.5	17.5	11.5	14.5	15.0	12.0	13.5	12.5	11.0	11.5
27	13.5	10.0	12.0	17.5	11.5	14.5	15.0	11.5	13.5	11.5	9.5	10.5
28	15.0	9.5	12.5	16.0	13.0	14.0	15.5	11.5	13.5	11.5	9.5	10.5
29	15.0	10.0	12.5	17.5	12.0	14.5	15.5	11.0	13.5	11.0	8.5	10.0
30	14.5	11.0	13.0	18.0	12.5	15.5	15.5	12.0	14.0	11.0	9.5	10.0
31	---	---	---	18.0	13.0	15.5	15.0	12.5	13.5	---	---	---
MONTH	15.5	4.0	10.0	18.5	9.0	14.0	18.5	11.0	14.5	15.5	8.0	11.5
YEAR	16.5	.0	6.0									

06090800 MISSOURI RIVER AT FORT BENTON, MT

LOCATION.--Lat 47°49'03", long 110°39'59", in SE¼SE¼ sec.23, T.24 N., R.8 E., Chouteau County, Hydrologic Unit 10030102, on left bank at downstream side of abandoned highway bridge at Fort Benton, 3.8 mi (6.1 km) upstream from Shonkin Creek, and at mile 2,073.2 (3,335.8 km).

DRAINAGE AREA.--24,749 mi² (64,100 km²).

PERIOD OF RECORD.--October 1890 to current year. Records for June 1881 to September 1890, published in WSP 546 and 761, have been found to be unreliable and should not be used.

REVISED RECORDS.--WSP 746: 1932. WSP 1146: 1891-1907, 1908(M), 1909-18, 1937-38. WSP 1209: 1948(P). WSP 1309: 1929(M). WSP 1629: Drainage area. See also PERIOD OF RECORD.

GAGE.--Water-stage recorder. Datum of gage is 2,614.05 ft (796.762 m), National Geodetic Vertical Datum of 1929. Prior to Oct. 11, 1920, nonrecording gages, and Oct. 11, 1920, to Apr. 25, 1924, water-stage recorder, all at present site at datum 1.00 ft (0.305 m) higher.

REMARKS.--Records good except those for the winter period and June 27 to Sept. 30, which are fair. Flow regulated by 18 smaller irrigation reservoirs and powerplants (see p.605-612), Clark Canyon Reservoir (see p. 42), and Canyon Ferry Reservoir (see p. 79). Diversions for irrigation of about 75,400 acres (3,040 km²) above station. Extreme diurnal fluctuation caused by powerplant at Morony Dam. Several observations of water temperature were made during the year and are on file in Helena District office.

AVERAGE DISCHARGE.--89 years, 7,780 ft³/s (220.3 m³/s), 5,637,000 acre-ft/yr (6.95 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge observed, about 140,000 ft³/s (3,960 m³/s) June 6, 1908, gage height, 18.5 ft (5.64 m), present datum, from rating curve extended above 63,000 ft³/s (1,780 m³/s); minimum, 320 ft³/s (9.06 m³/s) July 5, 1936, gage height, -0.50 ft (-0.15 m); minimum daily, 627 ft³/s (17.8 m³/s) July 5, 1936.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 20,600 ft³/s (583 m³/s) May 26, gage height, 5.97 ft (1.820 m); maximum gage height, 12.30 ft (3.749 m) Jan. 3 (backwater from ice); minimum daily discharge, 4,100 ft³/s (116 m³/s) Sept. 25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6860	7660	7660	6200	7800	7400	8690	11300	13700	6490	5450	4850
2	6970	7660	7600	7100	7600	7000	8280	11600	13000	6860	5600	4720
3	5990	7470	6130	7400	7800	7200	8360	11300	12100	7120	5350	4900
4	6710	7540	5660	7900	7700	7000	8390	10500	11700	6940	5390	5320
5	6480	7130	6860	7600	8000	7900	8570	11100	12100	6780	5530	5050
6	6060	7320	7050	7700	8500	10000	8340	12200	12400	6680	5460	5020
7	5760	7280	7430	7500	8600	12500	8790	12700	13200	6660	5440	5270
8	6160	7050	7130	6900	8500	15000	9140	11100	13100	6290	5200	5100
9	6450	7240	5790	7000	8400	14100	9560	10400	12300	6100	5300	5090
10	6020	7050	5790	6800	8400	11000	9950	10100	11500	5600	5120	4750
11	5430	7050	6270	7000	8400	10500	10200	9780	10500	5570	5360	4970
12	5690	6970	7620	7000	8300	10500	10300	9460	10400	5520	5320	5480
13	5530	6970	8650	7300	7500	10500	10000	9420	9710	5240	5360	5120
14	5630	7280	7920	7600	6800	11000	9670	9740	9560	5310	5270	5010
15	5990	6970	7540	7400	6600	9610	9520	10200	9040	5640	5690	5130
16	5620	7090	7600	7700	6600	8660	9500	10200	7540	6220	5700	5490
17	5370	6860	7800	7700	6400	8770	9590	11300	7500	4810	5450	5220
18	5490	6780	7400	7900	6800	8700	9970	13000	7300	4840	5390	4570
19	6090	6300	7700	7800	7400	8510	10900	13500	9870	5410	5220	4600
20	6400	5530	7600	7700	7200	8640	10900	13700	11800	5360	5500	4550
21	6670	5210	7360	7500	7200	8930	10500	15300	12800	5490	6240	4790
22	6740	6590	7010	8000	7100	8990	10700	15400	12500	5800	5520	5400
23	7130	8460	7510	7900	7000	8690	10300	15500	11400	5590	5600	5260
24	6430	8610	7960	8000	6800	8770	10300	15400	9390	5230	5560	5390
25	6780	8270	7770	8100	6700	8760	10400	15700	8260	5330	5350	4100
26	7010	7540	7400	8200	7200	8520	10300	17200	7690	5370	5500	4170
27	7620	6710	6500	8200	7700	8470	10400	18600	7560	5530	5550	4310
28	6160	6860	6600	8100	7600	8670	10700	18900	7030	5410	5510	5520
29	7320	7160	5900	7900	---	8650	10900	19000	7040	5210	5460	4500
30	7200	7430	5700	7900	---	8930	11200	16900	6820	5590	5420	4760
31	7580	---	6100	8000	---	8880	---	15000	---	5680	5290	---
TOTAL	199060	214040	219010	235300	210800	290750	294320	405500	309310	179710	169160	148210
MEAN	6421	7135	7065	7590	7529	9379	9811	13080	10310	5797	5457	4940
MAX	7620	8610	8650	8200	8600	15000	11200	19000	13700	7120	6240	5520
MIN	5370	5210	5660	6200	6400	7000	8280	9420	6820	4810	5120	4100
AC-FT	394800	424500	434400	466700	418100	576700	583800	804300	613500	356500	335500	294000

CAL YR 1978 TOTAL 3537320 MEAN 9691 MAX 21500 MIN 5210 AC-FT 7016000
WTR YR 1979 TOTAL 2875170 MEAN 7877 MAX 19000 MIN 4100 AC-FT 5703000

06091700 TWO MEDICINE RIVER BELOW SOUTH FORK, NEAR BROWNING, MT

LOCATION.--Lat 48°25'36", long 112°59'17", in SE¼SE¼SE¼ sec. 23, T.31 N., R.11 W., Glacier County, Hydrologic Unit 10030201, on right bank 93 ft (28 m) downstream from bridge on Blackfoot Secondary Highway No. 1, 9.7 mi (15.6 km) south of Browning, 12.3 mi (19.8 km) northwest of Heart Butte.

DRAINAGE AREA.--250 mi² (648 km²)

PERIOD OF RECORD.--May 1977 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 4,180 ft (1,274 m), from topographic map.

REMARKS.--Records good except those for winter period, which are poor. No gage-height record Jan. 9 to Mar. 15 and June 20-28. Flow regulated by Lower Two Medicine Lake (see p.608,612). Diversions for irrigation of about 64.0 acres (259,000 m²) above station. Several observations of water temperature were made during the year and are available in files of Helena district office.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,290 ft³/s (93.2 m³/s) May 26, 1979, gage height, 5.91 ft (1.802 m); minimum daily, 17 ft³/s (0.48 m³/s), Sept. 18, 19, 21, 1979.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge, 100,000 ft³/s (2,830 m³/s) June 8, 1964, as determined at Two Medicine River near Browning (06092000) located about 10 mi (16 km) downstream. Stage not determined at this site.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,290 ft³/s (93.2 m³/s) May 26, gage height, 5.91 ft (1.801 m); minimum daily, 17 ft³/s (0.48 m³/s) Sept. 18, 19, 21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	154	111	75	50	46	52	129	1070	1110	545	214	136
2	149	66	70	52	48	55	105	831	1160	514	223	133
3	148	62	75	54	50	60	103	852	1400	453	224	129
4	146	91	80	56	52	70	101	853	1600	411	230	127
5	146	75	76	58	54	80	105	1220	1960	404	226	127
6	146	76	76	60	56	200	162	1490	2280	420	216	126
7	143	86	76	62	58	490	256	1370	1880	411	216	126
8	139	111	80	60	60	400	290	1190	1330	390	216	120
9	141	65	82	58	62	350	330	1610	1110	369	212	120
10	136	60	84	56	60	310	275	923	1040	344	227	120
11	132	55	86	54	58	290	229	995	1080	318	226	119
12	132	65	88	52	56	270	197	1120	1230	298	228	119
13	130	75	88	50	54	250	194	1270	1330	273	228	110
14	129	80	86	48	52	240	182	1260	1240	250	228	101
15	129	85	86	50	50	220	190	1540	1060	235	225	33
16	127	90	88	52	52	210	222	2300	966	224	214	21
17	127	80	82	54	54	182	352	2280	843	231	212	18
18	126	70	80	56	56	170	397	2040	1210	214	212	17
19	121	65	78	58	58	159	322	2030	1160	215	225	17
20	120	60	80	60	56	149	271	1810	1030	219	220	18
21	124	70	82	58	54	139	246	1920	1000	213	213	17
22	123	80	84	58	52	134	256	2210	950	209	194	24
23	119	90	86	56	50	132	229	2360	880	207	191	32
24	123	100	88	56	52	136	200	2600	820	219	191	33
25	124	105	90	54	54	129	190	2900	770	219	190	30
26	119	100	85	54	56	125	294	2980	720	216	195	27
27	118	95	80	52	56	109	407	3050	680	211	183	26
28	118	90	70	52	54	109	619	2570	650	206	165	26
29	123	85	60	50	---	116	839	1940	575	213	160	26
30	118	80	50	48	---	111	925	1440	554	207	140	26
31	113	---	48	46	---	105	---	1230	---	214	136	---
TOTAL	4043	2423	2439	1684	1520	5552	8617	52984	33618	9072	6396	2098
MEAN	130	80.8	78.7	54.3	54.3	179	287	1709	1121	293	206	69.9
MAX	154	111	90	62	62	490	925	3050	2280	545	230	136
MIN	113	55	48	46	46	52	101	831	554	206	136	17
AC-FT	8020	4810	4840	3340	3010	11010	17090	105100	66680	17990	12690	4160
(†)	0	0	0	0	0	0	0	690	7,630	12,490	10,590	2,450

CAL YR 1978 TOTAL 144459 MEAN 396 MAX 2510 MIN 35 AC-FT 286500
WTR YR 1979 TOTAL 130446 MEAN 357 MAX 3050 MIN 17 AC-FT 258700

† Flows, in acre-feet, in Two Medicine Canal.

06093200 BADGER CREEK BELOW FOUR HORNS CANAL, NEAR BROWNING, MT

LOCATION.--Lat 48°22'12", long 112°48'07", in NW¼SW¼SE¼ sec.8, T.30 N., R.9 W., Glacier County, Hydrologic Unit 10030201, on left bank, 3.4 mi (5.5 km) downstream from point of diversion to Four Horns Canal, 11.6 mi (18.7 km) upstream from mouth, and 15.5 mi (24.9 km) southeast of Browning.

DRAINAGE AREA.--152 mi² (394 km²).

PERIOD OF RECORD.--October 1973 to current year. If monthly figures of diversion to Four Horns Canal are added to records at this site, records equivalent to those published as Badger Creek near Browning (1951-73) can be obtained.

GAGE.--Water-stage recorder. Altitude of gage is 4,140 ft (1,262 m), from topographic map. May 1951 to September 1973, water-stage recorder at site 3.4 mi (5.5 km) upstream at datum 4,179.26 ft (1,273.838 m) National Geodetic Vertical Datum of 1929 (Water and Power Resources Service bench mark).

REMARKS.--Records good except those for winter period, which are poor. Four Horns Canal diverts water from right bank in NE¼ sec.24, T.30 N., R.10 W., at diversion dam 3.4 mi (5.5 km) upstream for irrigation of about 6,000 acres (24.3 km²) below station. Recorded diversions from Badger Creek above station for the current year are listed in daily table below. Several observations of water temperature were made during the year and are available in files of Helena district office.

AVERAGE DISCHARGE.--28 years (1951-79), 230 ft³/s (6.514 m³/s), 20.54 in/yr (522 mm/yr), 166,600 acre-ft/yr (205 hm³/yr), adjusted for diversion.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 49,700 ft³/s (1,410 m³/s) June 8, 1964, gage height, 10.37 ft (3.161 m), from rating curve extended above 2,000 ft³/s (56.6 m³/s) on basis of slope-area measurement of peak flow (site and datum then in use); minimum daily, 7.4 ft³/s (0.21 m³/s) Oct. 31, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,590 ft³/s (45.0 m³/s) May 27, gage height, 6.56 ft (1.999 m); minimum daily, 21 ft³/s (0.60 m³/s) Aug. 13, 31.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	120	113	110	80	80	80	107	366	648	215	41	22
2	122	114	105	85	85	85	108	326	687	194	39	23
3	118	115	115	90	90	90	105	326	861	175	38	25
4	116	127	130	95	95	100	102	346	1010	164	37	27
5	115	131	125	100	100	117	101	435	1090	164	34	29
6	114	125	120	105	100	210	113	488	1060	164	32	27
7	113	120	125	110	105	221	146	440	830	154	32	26
8	111	115	125	105	105	170	145	383	668	140	32	25
9	110	110	130	105	110	151	150	340	604	130	62	24
10	108	100	130	100	110	140	157	318	637	124	51	26
11	108	95	135	100	105	143	146	315	670	92	22	27
12	109	100	135	95	100	147	136	347	768	92	22	28
13	107	105	130	85	95	140	132	389	826	100	21	43
14	105	110	130	75	90	132	129	457	738	92	27	55
15	105	115	125	80	85	126	128	541	593	89	31	54
16	104	120	120	85	90	126	131	778	518	84	29	54
17	105	115	115	90	95	123	145	871	497	79	27	55
18	104	110	110	95	100	119	161	766	710	73	27	55
19	101	105	105	100	95	117	158	744	618	73	33	56
20	100	100	110	105	90	114	155	715	543	79	43	56
21	104	105	110	100	85	113	153	750	451	77	40	55
22	103	110	115	95	80	111	156	913	407	76	39	55
23	99	115	115	95	85	109	168	1010	371	67	32	56
24	104	120	120	90	90	113	162	1250	345	54	34	56
25	106	125	120	90	95	121	161	1300	314	57	35	56
26	103	125	110	85	95	113	204	1370	294	53	35	54
27	103	120	100	85	90	117	203	1510	265	36	30	54
28	102	120	90	85	85	114	225	1250	253	36	26	53
29	106	115	80	80	---	113	277	936	231	60	24	55
30	112	115	70	80	---	111	327	779	221	52	23	55
31	116	---	75	80	---	109	---	680	---	46	21	---
TOTAL	3353	3415	3535	2850	2650	3895	4693	21441	17728	3091	1019	1286
MEAN	108	114	114	91.9	93.9	126	156	692	591	99.7	32.9	42.9
MAX	122	131	135	110	110	221	327	1510	1090	215	62	56
MIN	99	95	70	75	80	80	101	315	221	36	21	22
CFSM	.71	.75	.75	.61	.62	.83	1.03	4.55	3.89	.66	.22	.28
IN.	.82	.84	.87	.70	.64	.95	1.15	5.25	4.34	.76	.25	.31
AC-FT	6650	6770	7010	5650	5220	7730	9310	42530	35160	6130	2020	2550
(†)	1120	0	0	0	0	0	0	0	3,920	6,690	6240	4150

CAL YR 1978 TOTAL 76166 MEAN 209 MAX 1270 MIN 55 CFSM 1.38 IN 18.64 AC-FT 151100
WTR YR 1979 TOTAL 68956 MEAN 189 MAX 1510 MIN 21 CFSM 1.24 IN 16.87 AC-FT 136700

† Diversions, in acre-feet, by Four Horns Canal.

06098100 BIRCH CREEK NEAR VALIER, MT

LOCATION.--Lat 48°21'29", long 112°20'13", in SW¼NE¼SE¼ sec.14, T.30 N., R.6 W., Pondera County, Hydrologic Unit 10030201, Blackfoot Indian Reservation, on left bank, 240 ft (73 m) downstream from bridge on State Highway 358, 4.2 mi (6.8 km) downstream from Dupuyer Creek, 5.5 mi (8.8 km) northwest of Valier, and 12.7 mi (20.4 km) upstream from mouth.

DRAINAGE AREA.--471 mi^2 (1,220 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1977 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 3,600 ft (1,100 m), from topographic map.

REMARKS.--Water-discharge records good except those for winter period, which are poor. Flow regulated by Swift Reservoir (see p.609, 612). Numerous diversions for irrigation above station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,990 ft^3/s (56.4 m^3/s) Mar. 7, 1979, gage height, 5.99 ft (1.826 m); maximum gage height, 8.18 ft (2.493 m) Mar. 18, 1978 (backwater from ice); minimum daily discharge, 11 ft^3/s (0.31 m^3/s) Sept. 29, 1979.

EXTREMES OUTSIDE PERIOD OF RECORD.--Outstanding flood occurred June 8, 1964; caused by failure of Swift Dam following extremely heavy rainfall. A discharge of 881,000 ft^3/s (24,900 m^3/s) was determined at the Birch Creek near Dupuyer gage (06095000), about 24 mi (45 km) upstream. The discharge would have been much less by the time it reached this gage site.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,990 ft^3/s (56.4 m^3/s) Mar. 7, gage height, 5.99 ft (1.826 m); maximum gage height, 6.80 ft (2.073 m) Mar. 6 (ice jam); minimum daily discharge, 11 ft^3/s (0.31 m^3/s) Sept. 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	38	68	70	30	50	58	129	300	812	63	21	43
2	36	71	65	32	52	60	120	323	789	66	20	44
3	35	80	60	34	54	70	128	296	770	60	17	44
4	33	90	55	36	56	100	123	280	698	56	17	43
5	32	76	60	38	58	200	116	274	317	53	18	40
6	31	76	65	40	60	600	118	311	230	46	24	36
7	31	74	60	42	62	1200	145	323	192	50	26	32
8	29	73	60	40	64	1120	234	300	184	39	28	27
9	28	55	65	38	66	777	280	283	152	37	26	25
10	28	40	65	36	64	711	382	223	116	35	30	23
11	26	45	70	34	62	646	392	202	109	34	33	23
12	25	55	75	32	60	613	308	194	100	34	32	31
13	25	65	80	30	58	508	296	189	98	31	32	27
14	24	70	80	32	56	374	296	189	86	25	29	26
15	24	75	75	34	54	339	275	191	78	22	33	24
16	23	80	60	36	52	326	258	190	79	26	36	20
17	24	75	50	40	55	296	201	340	68	29	36	19
18	39	45	55	45	60	250	213	351	134	27	32	15
19	54	50	65	50	65	224	207	404	118	19	34	15
20	54	60	70	60	70	220	190	429	119	18	33	17
21	52	70	100	58	65	208	188	418	110	16	30	17
22	57	80	95	56	60	185	214	410	89	12	33	15
23	61	85	90	54	55	167	250	415	80	18	37	16
24	59	90	85	52	56	183	273	517	76	21	40	16
25	57	90	80	50	58	177	276	654	71	17	52	15
26	56	95	70	50	60	171	346	709	71	24	52	16
27	51	95	60	48	62	156	376	941	66	26	51	15
28	51	90	40	48	60	150	334	927	78	23	50	13
29	51	85	25	46	---	165	299	871	60	23	53	11
30	49	80	26	46	---	143	281	871	57	23	48	12
31	49	---	28	48	---	137	---	846	---	18	42	---
TOTAL	1232	2183	2004	1315	1654	10536	7248	13171	6029	991	1045	720
MEAN	39.7	72.8	64.6	42.4	59.1	340	242	425	201	32.0	33.7	24.0
MAX	61	95	100	60	70	1200	392	941	812	66	53	44
MIN	23	40	25	30	50	58	116	189	57	12	17	11
AC-FT	2440	4330	3970	2610	3280	20900	14380	26120	11960	1970	2070	1430

CAL YR 1978 TOTAL 24774 MEAN 67.9 MAX 1300 MIN 17 AC-FT 49140
WTR YR 1979 TOTAL 48128 MEAN 132 MAX 1200 MIN 11 AC-FT 95460

06098100 BIRCH CREEK NEAR VALIER, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1978 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1977 to current year.
WATER TEMPERATURES: October 1977 to current year.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,260 micromhos May 29, 1978; minimum daily 328 micromhos June 3, 4, 1979.
WATER TEMPERATURES: Maximum daily, 28.0°C Aug. 9, 1978; minimum daily, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 767 micromhos Dec. 3; minimum daily, 328 micromhos June 3, 4.
WATER TEMPERATURES: Maximum daily, 26.0 °C July 18; minimum daily, 0.0°C on many days during November to March.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)
OCT											
11...	1210	26	729	8.4	9.0	250	20	49	32	73	2.0
NOV											
17...	1130	79	656	8.2	.0	260	0	59	27	46	1.2
JAN											
04...	1200	36	702	7.9	.0	290	14	75	26	50	1.3
30...	1630	46	640	8.0	.0	250	0	59	24	43	1.2
FEB											
27...	1515	61	575	8.0	.0	240	13	61	22	38	1.1
APR											
30...	1400	285	496	8.1	11.0	220	32	56	20	27	.8
MAY											
30...	1435	890	354	8.2	8.5	170	24	45	15	8.4	.3
JUN											
28...	1645	77	593	8.4	--	240	25	53	25	43	1.2
AUG											
04...	1137	19	620	8.3	19.5	210	9	41	26	53	1.6
SEP											
13...	1740	25	609	8.4	17.5	210	0	41	25	55	1.7

DATE	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)
OCT											
11...	2.3	270	130	4.2	.6	2.9	459	.62	32.2	.53	.00
NOV											
17...	1.8	260	90	3.2	.3	6.0	392	.53	83.6	.42	.00
JAN											
04...	2.4	280	100	4.2	.3	5.2	434	.59	42.2	.56	.02
30...	1.7	260	75	3.0	.3	5.8	370	.50	46.0	.40	.01
FEB											
27...	1.5	230	70	2.9	.3	5.5	342	.47	56.3	.52	.01
APR											
30...	1.7	190	59	2.4	.3	9.5	306	.42	235	--	.01
MAY											
30...	.9	150	28	.5	.4	3.7	193	.26	464	.12	.01
JUN											
28...	2.4	210	110	2.6	.4	3.5	366	.50	76.5	.02	.03
AUG											
04...	2.7	200	130	3.9	.3	2.7	380	.52	19.7	.05	.00
SEP											
13...	2.2	220	120	3.1	.4	2.8	382	.52	25.8	.05	.01

06098100 BIRCH CREEK NEAR VALIER, MT--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	700	642	716	695	625	610	583	597	338	573	617	576
2	707	585	746	673	627	610	582	596	343	590	564	550
3	719	592	767	704	621	608	579	599	328	580	600	548
4	709	557	690	694	623	568	616	551	328	629	577	550
5	728	560	702	698	622	568	621	661	409	627	570	551
6	741	553	698	619	626	558	686	662	410	626	563	552
7	740	573	702	688	626	518	691	661	410	629	547	560
8	738	574	714	682	618	432	679	592	433	631	553	630
9	751	580	728	675	630	441	706	591	439	601	551	606
10	747	643	707	664	630	454	699	576	447	603	548	628
11	738	666	689	633	629	490	711	578	450	605	497	619
12	730	696	668	673	629	504	633	576	453	605	572	614
13	---	689	664	678	614	495	559	523	491	607	619	609
14	761	659	663	678	617	497	564	526	480	621	606	622
15	746	666	665	653	614	539	559	526	475	626	621	647
16	749	657	663	652	612	551	553	473	473	623	609	649
17	751	648	663	653	612	530	535	471	559	621	615	645
18	757	639	678	652	612	580	522	469	557	630	618	649
19	726	702	670	643	592	578	510	439	556	629	622	653
20	682	708	674	638	594	577	515	438	478	629	607	654
21	651	712	682	626	596	568	596	429	500	631	592	656
22	648	700	661	626	595	570	597	430	570	631	605	706
23	660	---	658	622	592	580	592	425	569	651	601	699
24	659	541	655	626	582	576	590	401	568	646	603	696
26	635	675	638	626	591	552	704	375	571	611	552	702
27	640	675	680	620	592	560	595	382	530	610	556	698
28	643	668	679	623	594	570	483	384	442	612	556	699
29	632	689	682	620	---	559	484	382	559	611	557	701
30	638	692	726	625	---	580	486	375	550	610	591	707
31	656	---	697	626	---	582	---	371	---	591	572	---
MEAN	701	642	686	652	611	547	597	494	476	617	583	636

WTR YR 1979 MEAN 604 MAX 767 MIN 328

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12.0	7.0	.0	.0	.0	.0	5.0	9.5	15.0	15.0	18.0	16.0
2	11.0	6.0	.0	.0	.0	.0	5.0	10.0	14.0	17.5	16.0	14.0
3	9.0	7.5	.0	.0	.0	.0	3.0	8.0	16.0	12.0	21.0	20.0
4	8.0	4.0	.0	.0	.0	.0	2.5	6.5	12.0	14.0	14.0	21.0
5	11.5	6.0	.0	.0	.0	.0	2.0	7.5	10.0	19.5	23.0	22.5
6	8.0	2.0	.0	.0	.0	.0	4.0	7.0	11.0	20.0	25.0	16.0
7	13.0	4.0	.0	.0	.0	.0	3.0	5.5	12.0	24.0	18.0	20.0
8	9.0	5.0	.0	.0	.0	.0	6.5	6.5	9.0	20.5	21.5	21.0
9	12.5	1.0	.0	.0	.0	.0	5.0	7.0	17.5	21.0	17.0	14.0
10	12.0	1.0	.0	.0	.0	.0	4.0	8.0	14.0	18.0	19.0	13.0
11	10.0	1.0	.0	.0	.0	.0	4.5	11.0	20.0	15.0	20.0	15.0
12	9.0	1.0	.0	.0	.0	.0	4.0	10.0	20.0	14.0	20.5	10.5
13	10.0	1.0	.0	.0	.0	.0	6.0	11.0	18.0	12.5	21.0	12.0
14	12.0	1.0	.0	.0	.0	.0	7.5	16.0	19.0	25.0	16.5	16.5
15	8.0	.0	.0	.0	.0	.0	8.0	17.0	13.5	21.0	20.0	11.0
16	9.0	.0	.0	.0	.0	.0	6.0	12.0	15.5	16.0	20.5	9.5
17	8.5	.0	.0	.0	.0	.0	10.0	15.0	19.0	24.0	22.5	10.5
18	7.0	.0	.0	.0	.0	.0	9.0	12.5	17.0	26.0	20.0	12.5
19	11.5	.0	.0	.0	.0	.0	9.0	17.0	12.0	18.0	19.5	14.0
20	11.0	.0	.0	.0	.0	.0	10.0	12.0	17.5	23.5	21.5	15.0
21	9.0	.0	.0	.0	.0	.0	10.0	14.0	15.5	21.0	16.5	16.5
22	7.0	.0	.0	.0	.0	.0	10.5	10.0	18.5	20.0	18.0	13.0
23	8.0	.0	.0	.0	.0	.0	6.0	12.0	18.0	20.0	17.0	13.5
24	7.0	.0	.0	.0	.0	.0	4.5	15.0	14.5	21.0	16.0	14.0
25	7.5	.0	.0	.0	.0	---	6.0	13.0	20.0	16.0	17.5	12.5
26	5.0	.0	.0	.0	.0	1.5	10.5	10.0	24.0	14.0	20.0	14.0
27	6.0	.0	.0	.0	.0	1.0	12.0	10.0	23.0	15.0	15.0	15.0
28	7.0	.0	.0	.0	.0	1.0	10.0	8.5	20.0	23.0	16.0	13.5
29	6.5	.0	.0	.0	---	1.5	12.0	13.0	22.0	19.5	21.0	12.0
30	5.0	.0	.0	.0	---	4.5	11.5	9.0	16.0	24.0	17.0	15.5
31	2.0	---	.0	.0	---	2.5	---	7.0	---	25.0	21.0	---
MEAN	9.0	1.5	.0	.0	.0	.5	7.0	10.5	16.5	19.0	19.0	15.0

WTR YR 1979 MEAN 8.0 MAX 26.0 MIN .0

06099500 MARIAS RIVER NEAR SHELBY, MT

LOCATION.--Lat 48°25'38", long 111°53'20", in E¼NW¼SE¼ sec.20, T.31 N., R.2 W., Toole County, Hydrologic Unit 10030203, on left bank 20 ft (6 m) downstream from bridge on old U.S. Highway 91, 5.1 mi (8.2 km) south of Shelby, 24 mi (39 km) downstream from Cut Bank Creek, and at mile 168 (270 km).

DRAINAGE AREA.--3,242 mi² (8,397 km²), of which 518 mi² (1,342 km²) is probably noncontributing.

PERIOD OF RECORD.--April 1902 to December 1904, May 1905 to December 1906, May 1907 to January 1908, April 1911 to current year. Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WSP 1309: 1903-4, 1918, 1921, 1933, 1935, 1947. WSP 1509: 1902, 1912(M), 1916, 1943(M). WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 3,087.72 ft (941.137 m) National Geodetic Vertical Datum of 1929. Prior to Dec. 23, 1947, nonrecording gage or water-stage recorder at several sites within 1,000 ft (305 m) of present site at approximately the same datum. Dec. 23, 1947, to Apr. 6, 1976, water-stage recorder at site 150 ft (46 m) downstream at same datum.

REMARKS.--Records good except those for winter period, which are poor. Several observations of water temperature were made during the year and are available in files of Helena district office. Some regulation by Lower Two Medicine Lake, Four Horns Reservoir, Swift Reservoir and Lake Frances (see p.608-609,612) having a combined capacity of 172,630 acre-ft (213 hm³). Diversion for irrigation of about 50,000 acres (202 km²) above station and about 15,000 acres (60.7 km²) below.

AVERAGE DISCHARGE.--71 years, (1902-4, 1905-6, 1911-79), 952 ft³/s (26.96 m³/s), 689,700 acre-ft/yr (850 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 241,000 ft³/s (6,830 m³/s) June 9, 1964, largely due to failure of Swift Dam, gage height, 23.64 ft (7.205 m), from floodmark, from rating curve extended above 34,000 ft³/s (963 m³/s) on basis of slope-area measurement of peak flow; maximum unaffected by dam failure, 75,700 ft³/s (2,140 m³/s) June 20, 1975, gage height, 18.21 ft (5.550 m); minimum observed, 10 ft³/s (0.28 m³/s) Aug. 20, 1919.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6,600 ft³/s (187 m³/s) May 27, gage height, 7.27 ft (2.216 m): minimum, 129 ft³/s (3.65 m³/s) Sept. 23, gage height, 2.93 ft (0.893 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	492	390	350	160	150	190	598	2200	3440	1180	300	261
2	479	397	300	160	145	180	555	2460	3090	1170	274	255
3	481	388	250	160	160	190	538	2230	3240	1100	249	255
4	478	367	260	160	170	240	547	2170	3620	975	232	232
5	471	374	270	150	190	300	514	2140	3720	878	226	232
6	476	388	290	160	200	500	506	2730	3860	857	226	232
7	473	364	280	180	190	1200	555	3180	3980	857	226	220
8	459	403	270	170	180	2500	857	3020	3700	826	220	220
9	450	416	280	160	210	3000	1220	2680	2940	786	214	203
10	442	301	310	160	190	2630	1480	2270	2510	756	214	182
11	427	283	350	170	170	2610	1460	1970	2360	661	214	172
12	419	275	340	170	190	2820	1260	1960	2440	596	209	187
13	424	270	330	160	180	2190	1080	2120	2660	563	198	209
14	434	260	310	140	160	1780	1050	2400	2800	530	203	203
15	431	350	290	150	150	1660	1040	2580	2580	467	209	187
16	425	380	270	150	170	1660	1010	2960	2270	452	220	182
17	418	400	280	160	180	1720	975	3940	2050	452	226	177
18	412	400	290	160	190	1500	1070	4120	2090	422	214	167
19	414	380	300	170	200	1240	1310	3940	2700	384	220	147
20	427	360	295	190	190	1100	1220	3900	2660	355	243	138
21	405	350	300	180	170	997	1090	3660	2400	334	243	133
22	405	370	310	170	160	953	1070	3860	2090	341	293	133
23	421	390	320	170	160	921	1210	4200	1850	369	286	138
24	398	400	320	160	170	857	1270	4560	1710	355	286	138
25	394	420	310	160	190	878	1300	5280	1590	334	306	143
26	403	440	290	160	220	816	1260	5730	1500	320	320	143
27	391	430	280	150	210	756	1480	6090	1420	334	334	152
28	390	420	250	150	200	680	1610	5800	1400	341	341	147
29	386	430	210	150	---	652	1780	5370	1330	327	327	147
30	381	410	170	145	---	680	1930	4410	1240	320	327	133
31	388	---	150	150	---	624	---	3820	---	327	293	---
TOTAL	13294	11206	8825	4985	5045	38024	32845	107750	75240	17971	7893	5468
MEAN	429	374	285	161	180	1227	1095	3476	2508	580	255	182
MAX	492	440	350	190	220	3000	1930	6090	3980	1180	341	261
MIN	381	260	150	140	145	180	506	1960	1240	320	198	133
AC-FT	26370	22230	17500	9890	10010	75420	65150	213700	149200	35650	15660	10850

CAL YR 1978 TOTAL 359361 MEAN 985 MAX 6000 MIN 150 AC-FT 712800
WTR YR 1979 TOTAL 328546 MEAN 900 MAX 6090 MIN 133 AC-FT 651700

06101200 WILLOW CREEK NEAR GALATA, MT

LOCATION.--Lat 48°26'55", long 111°20'40", in SW¼NE¼NE¼ sec. 16, T.31 N., R.3 E., Toole County, Hydrologic Unit 10030204, on right bank at downstream side of bridge on Bootlegger Trail Road, 0.5 mi (0.8 km) downstream from mouth of West Fork Willow Creek, 1.2 mi (1.9 km) south of U.S. Highway 2, and 1.7 mi (2.7 km) south of Galata.

DRAINAGE AREA.--839 mi² (2,173 km²).

PERIOD OF RECORD.--October 1976 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 3,040 ft (927 m), from topographic map.

REMARKS.--Records excellent except those for periods of flow, which are fair, and those for winter period, which are poor. No gage-height record Nov. 10 to Mar. 14. Regulation by small irrigation reservoirs upstream. Diversions for irrigation of about 4,150 acres (16.8 km²). Several observations of water temperature were made during the year and are available in files of Helena district office.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,180 ft³/s (33.4 m³/s) Mar. 27, 1978, gage height, 10.23 ft (3.118 m); no flow many days most years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge not determined; maximum gage height observed, 8.68 ft (2.646 m) Mar. 9 (backwater from ice); no flow on many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.4	5.8	3.2	.00	.00	.00	120	68	14	1.2	.02	.00
2	9.0	5.8	3.0	.00	.00	.00	114	67	14	1.0	.01	.00
3	9.0	5.8	2.6	.00	.00	.00	21	67	14	.98	.00	.00
4	8.7	5.4	3.0	.00	.00	.00	18	67	14	1.0	.00	.00
5	8.2	4.6	3.2	.00	.00	1.0	18	67	14	1.5	.00	.00
6	8.7	4.4	3.2	.00	.00	10	18	67	14	1.5	.00	.00
7	9.4	4.6	3.0	.00	.00	100	18	67	14	1.8	.00	.00
8	8.7	4.6	3.0	.00	.00	300	18	67	14	1.5	.00	.00
9	9.0	4.0	3.2	.00	.00	280	19	67	14	1.4	.00	.00
10	9.0	3.8	3.2	.00	.00	250	24	67	14	1.3	.00	.00
11	9.0	3.6	3.2	.00	.00	230	24	67	14	1.3	.00	.00
12	8.7	3.4	3.4	.00	.00	210	24	67	14	1.2	.00	.00
13	8.7	3.2	3.4	.00	.00	190	23	67	13	1.2	.00	.00
14	8.5	3.0	3.4	.00	.00	170	22	67	13	1.2	.00	.00
15	7.9	3.5	3.2	.00	.00	150	21	67	13	1.2	.00	.00
16	7.9	4.0	3.2	.00	.00	138	21	67	13	1.2	.00	.00
17	7.6	4.5	3.0	.00	.00	138	21	67	13	1.1	.00	.00
18	7.6	4.0	3.0	.00	.00	129	21	67	14	.91	.00	.00
19	7.6	3.5	2.8	.00	.00	127	21	67	13	.55	.00	.00
20	7.6	3.0	2.8	.00	.00	176	20	67	12	.78	.00	.00
21	7.6	2.5	3.0	.00	.00	164	20	67	5.2	.78	.00	.00
22	7.6	2.6	3.0	.00	.00	156	23	66	4.7	.78	.00	.00
23	7.6	2.8	3.2	.00	.00	154	71	20	4.4	.85	.00	.00
24	7.1	3.0	3.2	.00	.00	152	72	16	4.6	.78	.00	.00
25	7.1	3.2	3.0	.00	.00	143	72	16	2.6	.91	.00	.00
26	6.6	3.4	2.5	.00	.00	140	72	16	2.1	.98	.00	.00
27	6.3	3.6	2.0	.00	.00	138	71	16	2.0	.91	.00	.00
28	6.5	3.6	1.0	.00	.00	141	70	16	1.7	.72	.00	.00
29	6.5	3.6	.50	.00	---	138	69	16	1.2	.78	.00	.00
30	5.8	3.4	.00	.00	---	126	69	16	1.2	.60	.00	.00
31	4.7	---	.00	.00	---	120	---	15	---	.18	.00	---
TOTAL	243.2	116.4	83.60	.00	.00	4171.00	1215	1621	301.7	32.09	.03	.00
MEAN	7.85	3.88	2.70	.000	.000	135	40.5	52.3	10.1	1.04	.001	.000
MAX	9.4	5.8	3.4	.00	.00	300	120	68	14	1.8	.02	.00
MIN	4.7	2.5	.00	.00	.00	.00	18	15	1.2	.18	.00	.00
AC-FT	482	231	166	.00	.00	8270	2410	3220	598	64	.06	.00

CAL YR 1978 TOTAL 12338.05 MEAN 33.8 MAX 1110 MIN .00 AC-FT 24470
WTR YR 1979 TOTAL 7784.02 MEAN 21.3 MAX 300 MIN .00 AC-FT 15440

06101300 LAKE ELWELL NEAR CHESTER, MT

LOCATION.--Lat 48°19'06", long 111°05'27", in NW¼ sec.33, T.30 N., R.5 E., Liberty County, Hydrologic Unit 10030203, in control house of river outlet tunnel at Tiber Dam on Marias River, 15 mi (24 km) southwest of Chester.

DRAINAGE AREA.--4,923 mi^2 (12,751 km^2), of which 518 mi^3 (1,342 km^2) is probably noncontributing.

PERIOD OF RECORD.--October 1955 to current year (monthend contents only). Daily elevations and contents May to June 1964, published in WSP 1840-B. Prior to October 1975, published as Tiber Reservoir near Chester.

REVISED RECORDS.--WSP 1729: Drainage area.

GAGE.--Nonrecording gages read once daily except weekends and holidays. Datum of gage is referenced to National Geodetic Vertical Datum of 1929 (levels by Water and Power Resources Service). Records of daily elevations on file in Helena district office.

REMARKS.--Reservoir is formed by rolled earthfill dam with concrete spillway chute; construction began in September 1952; completed in March 1956. Storage began Oct. 28, 1955. Usable capactity, 1,347,000 acre-ft (1.66 km^3) between elevation 2,870.00 ft (874.776 m), trashrack sill, and 3,012.50 ft (918.210 m), top of flood control. Dead storage, 21,580 acre-ft (26.6 hm^3) below elevation, 2,870.00 ft (874.776 m). Prior to Oct. 1, 1963, usable capacity was 1,313,000 acre-ft (1.62 km^3) and dead storage was 24,000 acre-ft (29.6 hm^3) at same elevations. Figures given herein represent usable contents. Water is presently used for recreation and flood control.

COOPERATION.--Elevations and capacity table furnished by Water and Power Resources Service.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 1,193,000 acre-ft (1.47 km^3) July 12, 13, 1965 (elevation, 3,005.59 ft or 916.104 m); minimum observed since normal operation began, 442,100 acre-ft (520 hm^3) Apr. 1, 1968 (elevation, 2,953.81 ft or 900.321 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents observed, 783,400 acre-ft (910 hm^3) June 25-27, elevation, 2,980.25 ft (908.380 m); minimum observed, 496,900 acre-ft (613 hm^3) Mar. 5, 6, elevation, 2,961.15 ft (902.559 m).

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1978

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	2,972.37	629,300	---
Oct. 31	2,969.65	595,000	- 34,300
Nov. 30	2,967.63	570,600	- 24,400
Dec. 31	2,965.85	549,600	- 21,000
CAL YR 1978			+ 29,900
Jan. 31	2,963.55	523,400	- 26,200
Feb. 28	2,961.50	500,700	- 22,700
Mar. 31	2,967.95	574,400	+ 73,700
Apr. 30	2,965.49	545,500	- 28,900
May 31	2,975.20	666,800	+ 121,300
June 30	2,980.17	737,200	+ 70,400
July 31	2,976.24	681,100	- 56,100
Aug. 31	2,970.55	606,200	- 74,900
Sept. 30	2,966.85	561,300	- 44,900
WTR YR 1979			- 68,000

06101500 MARIAS RIVER NEAR CHESTER, MT

LOCATION.--Lat 48°18'21", long 111°04'44", in SW¼SW¼ sec.34, T.30 N., R.5 E., Liberty County, Hydrologic Unit 10030203, on left bank 2.0 mi (3.2 km) downstream from Tiber Dam, 4.3 mi (6.9 km) upstream from Pondera Coulee, and 15 mi (24 m) southwest of Chester.

DRAINAGE AREA.--4,927 mi² (12,761 km²), of which 518 mi² (1,342 km²) is probably noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April to September 1921, October 1945 to September 1947, October 1955 to current year. Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WSP 1629: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,814.03 ft (857.716 m) National Geodetic Vertical Datum of 1929 (Water and Power Resources Service bench mark). Prior to Oct. 1, 1921, nonrecording gage at bridge 2.5 mi (4.0 km) downstream at different datum. Oct. 4, 1945, to Sept. 30, 1946, nonrecording gage at site 3 mi (5 km) downstream at different datum.

REMARKS.--Water-discharge records good. Flow completely regulated by Lake Elwell since Oct. 28, 1955 (see preceding page).

AVERAGE DISCHARGE.--26 years (1945-47, 1955-79), 916 ft³/s (25.94 m³/s), 663,600 acre-ft/yr (818 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge not determined, occurred about Mar. 20, 1947; minimum, probably less than 0.2 ft³/s (0.006 m³/s) during period of no gage-height record Oct. 29 to Nov. 10, 1955, when gates at dam were closed.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 1948 reached at stage of 16 ft (4.9 m), present datum.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,140 ft³/s (60.6 m³/s) May 21, gage height, 5.30 ft (1.615 m); minimum daily, 405 ft³/s (11.5 m³/s) Oct. 24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1100	685	678	593	586	597	1620	1800	1410	1520	1510	1060
2	1110	685	679	594	586	598	1770	1820	1410	1520	1510	1080
3	1110	685	678	592	586	598	1830	1820	1420	1520	1510	1090
4	1110	680	638	592	586	597	1830	1820	1420	1520	1520	1090
5	1100	679	605	592	585	597	1830	1820	1420	1530	1510	1100
6	1100	685	604	592	581	605	1830	1830	1420	1540	1510	1110
7	1100	685	604	592	581	606	1820	1820	1410	1530	1500	1120
8	1110	682	604	592	582	607	1810	1830	1430	1540	1490	1130
9	1110	678	604	592	581	609	1810	1880	1430	1530	1500	1130
10	1100	681	604	594	582	612	1810	2110	1420	1530	1490	953
11	1100	691	604	593	581	613	1810	2120	1430	1530	1490	773
12	1100	687	604	592	582	619	1810	2120	1420	1540	1480	774
13	1100	685	595	592	581	624	1810	2120	1430	1540	1480	781
14	1100	685	598	592	580	627	1800	2120	1410	1550	1490	787
15	1100	692	599	592	583	750	1780	2120	927	1550	1470	795
16	1100	691	598	592	586	948	1790	2120	845	1550	1470	799
17	1100	690	596	592	581	1020	1780	2120	1270	1550	1460	805
18	1110	689	598	592	582	1010	1780	2120	1460	1570	1450	807
19	1110	692	598	591	581	1010	1780	2130	1470	1560	1460	814
20	1110	694	598	590	581	1010	1780	2130	1470	1560	1440	833
21	1100	692	598	590	583	1010	1780	2130	1470	1550	1430	761
22	1110	690	598	592	584	1010	1790	1850	1480	1560	1440	685
23	702	686	598	587	592	1010	1790	1400	1480	1550	1440	692
24	405	685	598	586	592	1010	1790	1400	1480	1540	1440	692
25	417	685	598	586	591	1000	1790	1390	1490	1550	1460	699
26	416	685	598	586	591	1000	1790	1400	1500	1540	1470	705
27	504	685	592	586	592	1250	1790	1400	1490	1540	1470	705
28	650	685	596	586	590	1400	1790	1400	1510	1530	1240	610
29	647	679	598	586	---	1400	1800	1410	1510	1530	1050	557
30	665	684	598	586	---	1540	1800	1410	1510	1530	1060	556
31	680	---	593	586	---	1630	---	1410	---	1520	1050	---
TOTAL	29376	20577	18853	18300	16369	27517	53790	56370	42242	47720	44290	25493
MEAN	948	686	608	590	585	888	1793	1818	1408	1539	1429	850
MAX	1110	694	679	594	592	1630	1830	2130	1510	1570	1520	1130
MIN	405	678	592	586	580	597	1620	1390	845	1520	1050	556
AC-FT	58270	40810	37390	36300	32470	54580	106700	111800	83790	94650	87850	50570

CAL YR 1978 TOTAL 393990 MEAN 1079 MAX 2900 MIN 245 AC-FT 781500
WTR YR 1979 TOTAL 400897 MEAN 1098 MAX 2130 MIN 405 AC-FT 795200

06101500 MARIAS RIVER NEAR CHESTER, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1964-72, 1978 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1964 to September 1972, January 1978 to current year.
WATER TEMPERATURES: October 1964 to September 1972, January 1978 to current year.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 791 micromhos May 3, 1979; minimum daily, 388 micromhos Aug. 17, 18, 21, 1972.
WATER TEMPERATURES: Maximum daily, 22.0°C Aug. 20, 1972; minimum daily, 0.5°C on several days during December to February 1979.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 791 micromhos May 3; minimum daily, 549 micromhos Aug. 30.
WATER TEMPERATURES: Maximum daily, 18.0°C on several days during August and September; minimum daily, 0.5°C on several days during December to February.

REVISIONS.--The concentrations of total recoverable cadmium and total recoverable lead for June 20, 1978 (1100 hours) were found in error and have been deleted.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)
OCT 17...	1330	1100	60	520	8.5	9.0	12.5	11	10.7	110
NOV 14...	1345	685	0	567	8.3	3.0	6.0	.90	12.3	115
DEC 19...	1330	598	0	560	8.3	-6.0	2.0	1.0	14.0	113
JAN 17...	1500	592	0	695	8.1	-4.0	2.5	.70	13.7	111
FEB 21...	0930	580	2	699	8.1	-11.0	2.0	.80	13.6	110
MAR 14...	1130	621	0	697	8.4	8.0	2.5	.40	15.0	121
APR 18...	1330	1780	60	739	8.1	8.0	3.5	4.6	13.3	112
MAY 15...	1230	2120	0	697	8.4	25.0	7.5	3.0	13.0	121
JUN 20...	1130	1460	1	661	8.3	22.0	11.0	2.5	11.6	116
JUL 18...	0900	1560	0	623	8.3	23.0	11.0	2.0	10.7	106
AUG 22...	1300	1420	2	577	8.3	24.0	15.0	1.6	10.6	115
SEP 26...	1130	705	60	556	8.3	16.0	17.0	.70	9.3	107

06101500 MARIAS RIVER NEAR CHESTER, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)
OCT 17...	K1	K5	210	75	46	22	34	1.0	2.3	130
NOV 14...	<1	K10	220	90	50	23	35	1.0	2.2	130
DEC 19...	<1	K2	220	89	48	24	38	1.1	2.5	130
JAN 17...	<1	K2	260	100	56	30	50	1.3	2.6	160
FEB 21...	<1	22	270	110	62	29	48	1.3	2.2	160
MAR 14...	<1	K1	280	130	68	27	46	1.2	2.0	150
APR 18...	<1	K2	250	110	51	30	62	1.7	3.7	140
MAY 15...	<1	K2	250	110	54	28	52	1.4	3.2	140
JUN 20...	K2	K11	240	100	53	27	48	1.3	3.1	140
JUL 18...	K10	K3	230	89	49	26	47	1.4	2.5	140
AUG 22...	K3	K4	220	86	47	24	41	1.2	2.2	130
SEP 26...	K2	K3	210	85	48	23	39	1.2	2.2	130

DATE	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)
OCT 17...	--	150	3.6	.1	3.0	351	339	.48	1040	.16
NOV 14...	--	140	3.5	.2	3.7	350	336	.48	647	.16
DEC 19...	--	170	3.5	.2	3.1	366	368	.50	591	.16
JAN 17...	--	180	7.4	.2	3.0	453	425	.62	724	.23
FEB 21...	--	210	5.3	.2	3.3	454	456	.62	711	.25
MAR 14...	--	220	5.1	.2	3.3	448	462	.61	751	.21
APR 18...	--	220	6.0	.3	4.7	480	462	.65	2310	.62
MAY 15...	1.1	200	5.8	.2	3.2	457	431	.62	2620	.42
JUN 20...	--	200	5.0	.2	2.7	432	423	.59	1700	.34
JUL 18...	--	200	4.8	.2	3.8	400	417	.54	1690	.31
AUG 22...	--	160	4.0	.2	--	370	--	.50	1420	.34
SEP 26...	--	150	3.4	.2	3.2	362	348	.49	689	.16

06101500 MARIAS RIVER NEAR CHESTER, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) (00631)	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITROGEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITROGEN, KJELDAHL, TOTAL (MG/L AS N) (00625)	NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)	PHOSPHORUS, DISSOLVED (MG/L AS P) (00666)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CARBON, ORGANIC DISSOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUSPENDED TOTAL (MG/L AS C) (00689)
OCT										
17...	--	.00	.44	.44	.44	.01	.00	3.1	--	--
NOV										
14...	--	.01	.26	.27	.24	.00	.00	2.7	--	--
DEC										
19...	--	.00	.17	.17	.14	.01	.01	--	11	.3
JAN										
17...	--	.00	.20	.20	.21	.02	.02	2.6	--	--
FEB										
21...	--	.01	.13	.14	.19	.00	.00	2.7	--	--
MAR										
14...	--	.02	.16	.18	.12	.00	.00	--	3.3	.3
APR										
18...	--	.07	.39	.46	.34	.02	.01	5.3	--	--
MAY										
15...	--	.01	.42	.43	.29	.01	.01	3.7	--	--
JUN										
20...	--	.04	.12	.16	.34	.01	.01	--	3.7	.3
JUL										
18...	--	.03	.07	.10	.11	.03	.01	5.3	--	--
AUG										
22...	--	.02	.40	.42	.26	.03	.03	4.5	--	--
SEP										
26...	.15	.03	.66	.69	.50	.00	.00	--	4.4	.3

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DISSOLVED (UG/L AS AS) (01000)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA) (01007)	BARIUM, DISSOLVED (UG/L AS BA) (01005)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD) (01027)	CADMIUM DISSOLVED (UG/L AS CD) (01025)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)
DEC									
19...	1330	1	1	100	60	0	<1	20	0
MAR									
14...	1130	1	1	100	100	0	0	0	0
JUN									
20...	1130	1	1	0	100	0	0	0	10
SEP									
26...	1130	1	1	100	70	0	<1	10	10

DATE	COBALT, TOTAL RECOVERABLE (UG/L AS CO) (01037)	COBALT, DISSOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)	COPPER, DISSOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)	IRON, DISSOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOVERABLE (UG/L AS PB) (01051)	LEAD, DISSOLVED (UG/L AS PB) (01049)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)
DEC									
19...	2	<3	4	2	90	0	2	0	0
MAR									
14...	3	0	5	2	40	0	16	0	30
JUN									
20...	4	2	2	1	90	20	4	1	10
SEP									
26...	0	<3	1	1	70	<10	6	0	0

06101500 MARIAS RIVER NEAR CHESTER, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOVERABLE (UG/L AS HG) (71900)	MERCURY DISSOLVED (UG/L AS HG) (71890)	SELENIUM, TOTAL (UG/L AS SE) (01147)	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	SILVER, TOTAL RECOVERABLE (UG/L AS AG) (01077)	SILVER, DISSOLVED (UG/L AS AG) (01075)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)	ZINC, DISSOLVED (UG/L AS ZN) (01090)
DEC 19...	<1	.0	.0	1	1	3	0	20	<3
MAR 14...	10	.0	.0	1	1	0	0	0	10
JUN 20...	0	.0	.1	1	2	0	0	10	10
SEP 26...	<1	.1	.0	1	1	0	0	10	<3

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	552	564	567	673	708	701	722	750	666	632	608	552
2	550	562	571	673	707	702	714	731	670	632	604	552
3	552	565	571	701	707	700	703	791	665	631	597	550
4	550	563	573	688	705	702	708	762	669	631	600	553
5	552	564	574	690	702	700	706	760	662	631	602	551
6	554	564	574	695	706	700	710	695	671	640	606	551
7	555	566	576	696	704	701	715	699	669	641	604	552
8	555	562	566	699	701	700	722	712	668	638	600	551
9	554	562	571	698	701	699	716	710	669	635	596	551
10	553	564	571	700	700	698	710	714	663	623	591	552
11	553	562	571	700	704	695	713	698	662	611	585	553
12	552	562	572	700	701	696	715	702	665	619	584	554
13	553	564	573	700	702	704	719	681	663	618	589	555
14	556	566	573	705	705	700	720	683	650	619	586	554
15	558	565	570	704	704	702	725	698	684	610	581	554
16	556	564	570	706	701	702	722	705	688	609	576	551
17	554	564	577	709	698	694	721	682	654	612	572	552
18	556	564	575	709	699	694	713	684	653	610	564	551
19	555	562	589	711	699	697	716	681	650	611	560	552
20	553	564	602	711	699	693	719	701	651	612	562	552
21	556	566	615	712	701	695	725	702	650	612	571	551
22	560	567	619	710	699	696	770	693	648	611	569	554
23	562	567	618	711	699	695	768	712	645	609	571	557
24	567	564	642	713	701	697	764	712	646	604	566	560
25	564	565	642	712	698	707	733	707	643	606	554	559
26	563	565	645	712	697	704	712	704	639	604	552	557
27	564	566	644	711	698	708	700	703	640	605	555	556
28	563	566	661	712	695	712	703	701	640	604	554	557
29	562	566	657	709	---	712	742	711	633	595	551	558
30	562	566	659	718	---	718	751	710	634	598	549	559
31	564	---	669	716	---	704	---	708	---	598	552	---
MEAN	557	564	599	703	701	701	723	710	657	616	578	554

WTR YR 1979 MEAN 638 MAX 791 MIN 549

06101500 MARIAS RIVER NEAR CHESTER, MT--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14.5	10.0	3.0	1.0	1.0	2.0	2.0	4.0	7.0	10.0	11.0	18.0
2	14.5	10.0	3.0	1.0	1.0	1.0	2.0	4.0	7.0	10.0	11.0	18.0
3	14.5	10.0	2.5	1.0	1.0	2.0	2.5	4.0	8.0	11.0	11.0	18.0
4	14.5	10.0	2.5	1.0	1.5	2.0	2.0	4.0	8.0	10.0	11.0	18.0
5	14.0	9.5	2.0	1.0	2.0	2.0	2.0	4.0	8.0	10.5	11.5	18.0
6	14.0	9.0	1.0	1.0	1.5	2.5	2.0	4.5	8.0	10.0	11.0	18.0
7	13.5	10.0	1.0	1.0	2.0	3.0	3.0	4.5	8.0	10.5	11.0	18.0
8	13.0	10.0	1.0	1.0	1.0	3.0	3.0	4.5	8.0	11.0	12.0	18.0
9	13.0	8.0	1.0	1.0	2.0	4.0	3.0	5.0	8.0	11.0	12.0	18.0
10	14.0	7.5	2.0	1.0	1.0	4.0	3.0	5.0	9.0	11.0	11.5	18.0
11	13.5	7.0	1.5	1.5	1.0	3.0	3.0	5.0	9.0	11.5	12.0	16.0
12	13.0	6.0	1.0	1.0	1.0	3.0	2.5	5.0	10.0	12.0	12.5	16.0
13	13.0	6.0	1.0	1.0	1.5	3.0	3.0	6.0	10.0	10.0	12.0	16.0
14	13.0	6.0	1.0	.5	.5	3.0	3.0	6.0	10.0	10.0	12.0	16.0
15	13.0	6.0	.5	.5	.5	3.0	3.0	6.0	8.0	11.0	12.0	16.0
16	12.5	6.0	.5	.5	.5	2.5	3.0	6.0	9.0	11.5	12.0	16.0
17	12.5	6.0	1.0	1.0	.5	3.0	3.0	6.5	9.0	11.0	12.5	17.0
18	12.0	6.0	1.0	1.5	1.5	3.0	3.0	6.5	9.0	11.0	12.0	15.0
19	12.0	4.0	1.0	1.0	1.5	3.0	3.0	6.5	9.0	11.5	13.0	15.0
20	12.0	4.0	1.0	1.0	2.0	2.0	3.0	7.0	10.0	11.0	13.0	15.0
21	12.0	4.0	1.0	1.0	2.0	2.5	3.0	7.5	10.0	11.5	13.0	15.0
22	12.0	4.0	1.0	1.0	1.0	3.0	3.0	7.0	9.5	11.0	12.5	15.0
23	11.5	4.0	1.0	2.0	1.0	2.5	3.0	8.0	10.0	11.0	12.5	14.0
24	11.0	4.0	1.0	2.0	1.0	3.0	3.0	7.0	10.0	11.0	13.0	14.0
25	10.5	4.0	1.0	1.5	2.0	2.0	3.5	7.0	10.0	11.0	13.0	14.0
26	8.0	3.5	1.0	1.0	2.0	2.0	3.5	8.0	10.0	11.0	13.0	15.0
27	10.0	3.5	1.0	1.0	2.0	1.5	4.0	7.0	10.0	11.0	13.5	15.0
28	10.5	5.0	1.0	1.0	2.0	1.5	4.0	7.0	10.0	11.0	13.0	15.0
29	10.0	4.0	.5	1.0	---	2.0	4.0	7.0	10.0	11.0	18.0	14.5
30	9.5	4.0	1.0	1.0	---	2.0	4.0	7.0	10.0	11.0	18.0	14.5
31	10.0	---	1.0	1.0	---	2.0	---	8.0	---	11.5	18.0	---
MEAN	12.5	6.5	1.5	1.0	1.5	2.5	3.0	6.0	9.0	11.0	12.5	16.0

WTR YR 1979 MEAN 7.0 MAX 18.0 MIN .5

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPERATURE (DEG C) (00010)	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT 17...	1330	12.5	1100	7	21	87
NOV 14...	1345	8.0	685	5	9.2	90
DEC 19...	1330	2.0	598	3	4.8	90
JAN 17...	1500	2.5	592	2	3.2	--
FEB 21...	0930	2.0	580	2	3.1	--
MAR 14...	1130	2.5	621	3	5.0	58
APR 18...	1530	3.5	1780	18	87	94
MAY 15...	1230	7.5	2120	4	23	84
JUN 20...	1130	11.0	1460	4	16	77
JUL 18...	0900	11.0	1560	3	13	84
AUG 22...	1500	15.0	1420	5	19	81
SEP 26...	1130	17.0	705	3	5.7	87

06101500 MARIAS RIVER NEAR CHESTER, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	WEATHER (WMO CODE NUMBER) (00041)
AUG									
21...	1800	572	8.2	22.0	13.5	10.3	109	688	2
21...	1900	--	--	--	13.5	10.0	106	--	2
21...	2000	578	8.1	19.0	13.5	9.8	104	688	2
21...	2100	570	8.1	19.0	13.5	9.2	97	688	2
21...	2200	--	--	--	13.5	9.0	95	--	--
21...	2300	--	--	--	13.5	8.9	94	--	--
21...	2400	--	--	--	13.5	8.9	94	--	--
22...	0100	--	--	--	13.5	8.9	94	--	--
22...	0200	--	--	--	13.5	8.9	94	--	--
22...	0300	--	--	--	13.0	8.9	93	--	--
22...	0400	--	--	--	13.0	9.0	94	--	--
22...	0500	--	--	--	13.0	9.0	94	--	--
22...	0600	570	8.1	13.0	13.0	9.1	95	690	2
22...	0700	--	--	--	13.0	9.1	95	--	--
22...	0800	570	8.1	16.0	13.0	9.4	98	691	2
22...	0900	572	8.1	17.0	13.0	9.6	100	691	2
22...	1000	--	--	--	13.0	9.9	103	--	--
22...	1100	570	8.2	21.0	13.5	10.1	107	690	2
22...	1200	--	--	--	14.0	10.3	110	--	0
22...	1300	577	8.3	24.0	14.5	10.6	114	690	0
22...	1400	--	--	--	15.0	10.7	117	--	--
22...	1500	570	8.4	25.0	15.0	10.7	117	690	0
22...	1600	--	--	--	15.0	10.7	117	--	--
22...	1700	574	8.3	25.5	15.0	10.6	115	690	0
22...	1800	570	8.3	24.5	14.5	10.4	112	690	0

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

PERIPHYTON

DATE	TIME	LENGTH OF EXPO-SURE (DAYS) (00022)	PERI-PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M (00573)	PERI-PHYTON BIOMASS ASH WEIGHT G/SQ M (00572)	CHLOR-A PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2) (70957)	CHLOR-B PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2) (70958)	BIOMASS CHLORO-PHYLL RATIO PERI-PHYTON (UNITS) (70959)
DEC							
19...	1330	36	.000	.000	.000	.000	.00

06101500 MARIAS RIVER NEAR CHESTER, MT--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

PHYTOPLANKTON

DATE	NOV 14,78	MAR 14,79	MAY 15,79	JUN 20,79
TIME	1345	1130	1230	1130
TOTAL CELLS/ML	72	240	570	140
DIVERSITY: DIVISION	1.9	0.0	1.1	1.0
.CLASS	1.9	0.0	1.1	1.0
..ORDER	1.9	0.0	1.6	1.3
...FAMILY	2.3	1.9	2.2	1.7
....GENUS	2.3	1.9	2.3	1.7

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)								
.CHLOROPHYCEAE								
..CHLOROCOCCALES								
...OOCYSTACEAE								
....ANKISTRODESMUS	--	-	--	-	14	2	--	-
....OOCYSTIS	14#	20	--	-	--	-	--	-
...SCENEDESMACEAE								
....SCENEDESMUS	--	-	--	-	--	-	--	-
..VOLVOCALES								
...CHLAMYDOMONADACEAE								
....CHLAMYDOMONAS	--	-	--	-	--	-	--	-
CHRYSOPHYTA								
.BACILLARIOPHYCEAE								
..CENTRALES								
...COSCINODISCACEAE								
....CYCLOTELLA	--	-	--	-	86	15	13	9
..PENNALES								
...ACHNANTHACEAE								
....ACHNANTHES	14#	20	--	-	--	-	--	-
....COCCONEIS	--	-	--	-	--	-	--	-
...CYMBELLACEAE								
....CYMBELLA	14#	20	--	-	--	-	--	-
...DIATOMACEAE								
....DIATOMA	--	-	88#	36	160#	27	--	-
...FRAGILARIACEAE								
....ASTERIONELLA	--	-	--	-	--	-	52#	36
....FRAGILARIA	--	-	--	-	14	2	--	-
....SYNEDRA	--	-	66#	27	--	-	--	-
...GOMPHONEMATACEAE								
....GOMPHONEMA	--	-	66#	27	43	7	--	-
...NAVICULACEAE								
....NAVICULA	--	-	--	-	14	2	--	-
....PINNULARIA	--	-	--	-	14	2	--	-
...NITZSCHIACEAE								
....NITZSCHIA	--	-	22	9	--	-	13	9
CRYPTOPHYTA (CRYPTOMONADS)								
.CRYPTOPHYCEAE								
..CRYPTOMONADALES								
...CRYPTOCHRYSIDACEAE								
....CHROOMONAS	--	-	--	-	--	-	--	-
...CRYPTOMONADACEAE								
....CRYPTOMONAS	14#	20	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)								
.CYANOPHYCEAE								
..HORMOGONALES								
...NOSTOCACEAE								
....ANABAENA	--	-	--	-	--	-	64#	45
....ANABAENOPSIS	--	-	--	-	--	-	--	-
...OSCILLATORIACEAE								
....OSCILLATORIA	--	-	--	-	230#	40	--	-
EUGLENOPHYTA (EUGLENOIDS)								
.EUGLENOPHYCEAE								
..EUGLENALES								
...EUGLENACEAE								
....EUGLENA	--	-	--	-	--	-	--	-
....TRACHELOMONAS	14#	20	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

06101500 MARIAS RIVER NEAR CHESTER, MT--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

PHYTOPLANKTON

DATE	JUL 18,79	AUG 22,79	SEP 26,79
TIME	0900	1300	1130
TOTAL CELLS/ML	14	540	100
DIVERSITY: DIVISION	0.0	0.8	0.8
.CLASS	0.0	0.8	0.8
..ORDER	0.0	0.8	0.8
...FAMILY	0.0	1.7	1.3
....GENUS	0.0	1.7	1.3

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...OOCYSTACEAE						
....ANKISTRODESMUS	--	-	13	2	--	-
....OOCYSTIS	--	-	--	-	--	-
...SCENEDESMACEAE						
....SCENEDESMUS	--	-	26	5	--	-
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CHLAMYDOMONAS	--	-	13	2	--	-
CHRYSOPHYTA						
.BACILLARIOPHYCEAE						
..CENTRALES						
...COSCINODISCACEAE						
....CYCLOTELLA	14#	100	--	-	--	-
..PENNALES						
...ACHNANTHACEAE						
....ACHNANTHES	--	-	13	2	--	-
....COCCONEIS	--	-	--	-	64#	63
...CYMBELLACEAE						
....CYMBELLA	--	-	--	-	--	-
...DIATOMACEAE						
....DIATOMA	--	-	--	-	--	-
...FRAGILARIACEAE						
....ASTERIONELLA	--	-	--	-	--	-
....FRAGILARIA	--	-	--	-	--	-
....SYNEDRA	--	-	--	-	--	-
...GOMPHONEMATACEAE						
....GOMPHONEMA	--	-	--	-	--	-
...NAVICULACEAE						
....NAVICULA	--	-	--	-	--	-
....PINNULARIA	--	-	--	-	--	-
...NITZSCHIACEAE						
....NITZSCHIA	--	-	--	-	13	13
CRYPTOPHYTA (CRYPTOMONADS)						
.CRYPTOPHYCEAE						
..CRYPTOMONADALES						
...CRYPTOCHRYSIDACEAE						
....CHROOMONAS	--	-	--	-	26#	25
...CRYPTOMONADACEAE						
....CRYPTOMONAS	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..HORMOGONALES						
...NOSTOCACEAE						
....ANABAENA	--	-	--	-	--	-
....ANABAENOPSIS	--	-	180#	33	--	-
...OSCILLATORIACEAE						
....OSCILLATORIA	--	-	280#	52	--	-
EUGLENOPHYTA (EUGLENOIDS)						
.EUGLENOPHYCEAE						
..EUGLENALES						
...EUGLENACEAE						
....EUGLENA	--	-	13	2	--	-
....TRACHELOMONAS	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

06101560 PONDERA COULEE NEAR CHESTER, MT

LOCATION.--Lat 48°16'14", long 111°08'42", in SE¼SE¼NE¼ sec.13, T.29 N., R.4 E., Liberty County, Hydrologic Unit 10030203, on left bank 75 ft (23 m) upstream from bridge on county road, 8.5 mi (13.7 km) upstream from mouth, and 19.0 mi (30.6 km) southwest of Chester.

DRAINAGE AREA.--598 mi² (1,549 km²).

PERIOD OF RECORD.--October 1975 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 2,940 ft (896 m), from topographic map.

REMARKS.--Records fair except those for winter period, which are poor. No gage-height record Dec. 16 to Mar. 8. Natural flow of stream affected by numerous storage reservoirs upstream and diversions for irrigation of about 1,800 acres (7.3 km²) above station. Several observations of water temperature were made during the year and are available in files of the Helena district office.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,580 ft³/s (101 m³/s) Mar. 26, 1978, gage height, 13.3 ft (4.05 m), from floodmark; no flow at times most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge, 1,950 ft³/s (55.2 m³/s) June 8, 1964, gage height, 12.10 ft (3.688 m) from contracted-opening measurement of peak flow.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 50 ft³/s (1.42 m³/s) and maximums (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
unknown	unknown	unknown		a*9.88	3.011	Apr. 13	0800	76	2.15	4.25	1.295
Mar. 12	unknown	*unknown		unknown		June 23	0700	54	1.53	4.07	1.240

a-backwater from ice; from floodmark.

No flow most of winter period.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.5	1.1	.20	.00	.00	.00	29	25	6.9	19	21	15
2	4.0	1.1	.10	.00	.00	.00	24	22	5.8	20	19	13
3	3.6	1.0	.15	.00	.00	.00	23	19	3.3	19	12	12
4	2.3	1.0	.20	.00	.00	.00	20	17	2.7	15	8.3	11
5	1.2	.84	.20	.00	.00	1.0	20	15	1.3	13	7.6	11
6	5.0	.86	.15	.00	.00	10	20	20	3.5	13	11	12
7	6.9	.86	.15	.00	.00	100	19	20	5.9	18	12	13
8	8.3	.80	.15	.00	.00	150	18	18	5.4	15	18	13
9	9.2	1.3	.20	.00	.00	200	18	16	4.0	12	16	12
10	8.4	.20	.20	.00	.00	250	22	16	3.8	11	16	12
11	8.3	.15	.20	.00	.00	1040	25	17	5.2	9.4	16	11
12	9.0	.15	.20	.00	.00	1690	53	16	12	7.3	15	12
13	10	.15	.20	.00	.00	1220	75	15	11	5.4	16	10
14	11	.10	.15	.00	.00	745	66	13	9.3	3.6	17	9.4
15	9.7	.15	.15	.00	.00	483	51	12	9.4	1.5	19	7.8
16	8.8	.20	.15	.00	.00	361	41	10	8.4	1.4	23	6.9
17	10	.20	.15	.00	.00	284	35	8.8	7.4	1.0	17	5.4
18	8.8	.05	.10	.00	.00	237	30	8.0	6.5	1.0	15	4.2
19	7.4	.05	.10	.00	.00	202	26	6.9	5.2	.94	15	4.0
20	11	.05	.10	.00	.00	171	23	6.4	21	9.6	14	3.1
21	17	.05	.15	.00	.00	149	21	5.9	47	9.1	10	1.6
22	15	.15	.15	.00	.00	129	19	5.0	48	6.2	7.4	2.7
23	15	.20	.15	.00	.00	112	20	4.0	50	4.0	6.6	5.1
24	11	.25	.15	.00	.00	114	21	3.9	35	1.7	12	5.3
25	8.4	.25	.10	.00	.00	80	21	3.8	28	1.2	14	4.5
26	6.6	.30	.10	.00	.00	62	19	3.3	31	3.0	18	5.5
27	5.3	.30	.05	.00	.00	48	24	3.8	27	3.2	17	6.7
28	4.1	.35	.05	.00	.00	56	31	3.4	24	9.9	14	7.6
29	3.3	.35	.00	.00	---	36	33	4.2	20	12	13	6.6
30	2.2	.30	.00	.00	---	32	32	5.5	19	13	16	6.2
31	1.2	---	.00	.00	---	32	---	8.9	---	16	17	---
TOTAL	235.5	12.81	4.10	.00	.00	7944.00	879	352.8	467.0	275.44	452.9	249.6
MEAN	7.60	.43	.13	.000	.000	256	29.3	11.4	15.6	8.89	14.6	8.32
MAX	17	1.3	.20	.00	.00	1690	75	25	50	20	23	15
MIN	1.2	.05	.00	.00	.00	.00	18	3.3	1.3	.94	6.6	1.6
AC-FT	467	25	8.1	.00	.00	15860	1740	700	926	546	898	495

CAL YR 1978 TOTAL 20722.01 MEAN 56.8 MAX 3060 MIN .00 AC-FT 41100
WTR YR 1979 TOTAL 10923.15 MEAN 29.9 MAX 1690 MIN .00 AC-FT 21670

06108000 TETON RIVER NEAR DUTTON, MT

LOCATION.--Lat 47°55'45", long 111°33'12", near center of south line of SW¼ sec.12, T.25 N., R.1 E., Teton County, Hydrologic Unit 10030205, on right bank 150 ft (45.7 m) upstream from Kerr Bridge, 0.9 mi (1.4 km) downstream from Hunt Coulee, and 9.5 mi (15.3 km) northeast of Dutton.

DRAINAGE AREA.--1,307 mi² (3,385 km²). Area at site used prior to July 17, 1965, 1,308 mi² (3,388 km²).

PERIOD OF RECORD.--August 1954 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 3,235 ft (986 m), from topographic map. Prior to July 17, 1965, water-stage recorder at site 1,800 ft (549 m) downstream at datum 1.97 ft (0.600 m) lower.

REMARKS.--Records good except those for winter period, which are poor. No gage-height record Jan. 17 to Mar. 14. Water is diverted on left bank in sec.34, T.25 N., R.7 W., for storage in Bynum Reservoir (usable capacity, 75,000 acre-ft or 92.5 hm³). Diversions for irrigation of about 44,000 acres (178 km²) above station. Several observations of water temperature were made during the year and are available in files of Helena district office.

AVERAGE DISCHARGE.--25 years, 168 ft³/s (4.758 m³/s), 121,700 acre-ft/yr (150 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 71,300 ft³/s (2,020 m³/s) June 9, 1964, gage height, 20.48 ft (6.242 m), present site and datum, from floodmark, from slope-area measurement of peak flow; minimum discharge, 4.3 ft³/s (0.12 m³/s) Aug. 3, 4, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, not determined, probably occurred Mar. 7 (ice jam); minimum, 39 ft³/s (1.10 m³/s) Sept. 29, 30, but may have been less during period of ice effect.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	116	136	100	51	56	75	211	380	231	127	61	50
2	113	137	92	54	57	76	209	396	218	139	61	50
3	113	136	87	56	60	88	200	445	203	142	57	49
4	106	130	88	50	62	120	189	386	191	136	61	50
5	103	125	92	52	64	300	185	350	201	130	57	48
6	104	123	90	54	64	1000	187	337	224	128	56	47
7	105	123	91	52	64	3000	214	340	226	120	53	46
8	106	125	91	52	66	2500	344	336	219	116	47	46
9	96	110	96	53	68	1800	445	328	199	113	44	45
10	105	101	105	50	69	1230	576	319	188	104	43	44
11	111	94	111	47	70	1300	816	303	177	96	43	45
12	109	90	109	46	71	1100	628	279	172	85	45	47
13	102	88	102	45	72	960	505	263	162	80	51	49
14	98	90	98	46	72	860	449	256	159	79	56	49
15	93	92	93	49	70	720	382	256	162	76	54	50
16	92	94	92	52	65	688	348	256	156	78	59	49
17	94	96	94	54	67	638	330	253	206	88	65	45
18	98	95	98	58	67	563	354	253	266	103	71	45
19	99	93	99	62	65	460	464	253	391	92	70	46
20	99	90	99	66	63	392	477	253	410	90	71	43
21	100	89	100	66	60	353	369	253	317	81	77	44
22	105	89	105	65	58	342	343	256	261	72	75	44
23	110	89	110	63	59	317	343	240	231	71	69	44
24	112	89	112	61	60	307	414	240	203	76	62	43
25	114	89	107	59	62	305	518	275	172	76	59	43
26	116	91	99	58	66	274	640	383	158	80	62	43
27	116	98	90	56	82	254	682	344	144	92	60	43
28	118	117	76	56	78	223	617	350	128	92	62	43
29	120	116	60	55	---	220	498	350	121	79	59	40
30	118	110	46	55	---	226	417	282	120	78	56	40
31	122	---	48	55	---	224	---	246	---	70	53	---
TOTAL	3313	3145	2880	1698	1837	20915	12434	9463	6216	2989	1819	1370
MEAN	107	105	92.9	54.8	65.6	675	414	305	207	96.4	58.7	45.7
MAX	122	137	112	66	82	3000	816	445	410	142	77	50
MIN	92	88	46	45	56	75	185	240	120	70	43	40
AC-FT	6570	6240	5710	3370	3640	41480	24660	18770	12330	5930	3610	2720

CAL YR 1978 TOTAL 81510 MEAN 223 MAX 3510 MIN 26 AC-FT 161700
WTR YR 1979 TOTAL 68061 MEAN 187 MAX 3000 MIN 40 AC-FT 135000

06109500 MISSOURI RIVER AT VIRGELLE, MT

LOCATION.--Lat 48°00'14", long 110°15'19", in SW¼SW¼SE¼ sec.13, T.26 N., R.11 E., Chouteau County, Hydrologic Unit 10040101, on left bank 0.2 mi (0.3 km) upstream from Virgelle ferry, 0.6 mi (1.0 km) southwest of Virgelle, 3.4 mi (5.5 km) downstream from Spring Coulee, and at mile 2,032.6 (3,270.5 km).

DRAINAGE AREA.--34,379 mi^2 (89,042 km^2).

WATER DISCHARGE RECORDS

PERIOD OF RECORD.--February 1935 to current year. Prior to October 1953, published as "at Loma."

REVISED RECORDS.--WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,507.50 ft (764.286 m) National Geodetic Vertical Datum of 1929. Prior to Sept. 30, 1953, water-stage recorder at Loma, 18 mi (29 km) upstream, at datum 2,543.40 ft (775.228 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good except those for winter period, which are fair. Flow regulated by 23 smaller irrigation reservoirs and powerplants (see p. 605), Clark Canyon Reservoir (see p. 42), Canyon Ferry Reservoir (see p. 79), and Lake Elwell (see p. 118). Diversions for irrigation of about 850,400 acres (3,440 km^2) above station.

AVERAGE DISCHARGE.--44 years, 8,624 ft^3/s (244.2 m^3/s), 6,248,000 acre-ft/yr (7.70 km^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 122,000 ft^3/s (3,460 m^3/s) June 5, 1953, gage height, 23.4 ft (7.13 m), from floodmark, from rating curve for former site at Loma extended above 66,000 ft^3/s (1,870 m^3/s), adjusted to present site; minimum daily, 638 ft^3/s (18.1 m^3/s) July 5, 1936.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1908 reached a stage about 2 ft (0.6 m) higher than that of June 5, 1953, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 20,800 ft^3/s (589 m^3/s) May 28, gage height, 7.86 ft (2.396 m); maximum gage height, 14.69 ft (4.478 m) Dec. 22 (backwater from ice); minimum daily discharge, 4,520 ft^3/s (128 m^3/s) Sept. 26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7520	7930	8560	7200	8900	8200	10200	13200	15100	8410	6750	5820
2	8320	7870	8600	7900	8600	7800	9940	13200	14300	8290	6670	5740
3	6310	7870	7960	8100	8800	8100	9780	13400	13600	8650	6610	5800
4	7380	7810	5530	8700	8700	8000	10000	12400	13100	8800	6610	5900
5	7410	7700	7780	8400	8900	9200	9840	12900	13000	8500	6640	6090
6	6980	7610	7490	8500	9400	10200	10200	13500	13900	8380	6590	5980
7	6640	7610	7900	8300	9800	16500	10300	14700	14300	8350	6590	5800
8	6640	7490	7520	7600	9500	19000	10600	13600	14500	8230	6420	5800
9	7410	7550	6420	7700	9300	17000	11000	12400	13900	7810	6150	6010
10	6870	7520	6200	7600	9200	13500	11800	12100	13200	7290	6340	5690
11	6470	7380	7060	7700	9200	12900	12200	12000	12300	7290	6170	5430
12	6450	7120	7870	7800	8900	12800	12400	11600	11900	7040	6450	5960
13	6120	7150	9330	8000	8300	12500	12200	11500	11400	6750	6280	5770
14	6120	7410	9180	8400	7600	12900	11800	11700	10900	6730	6260	5460
15	6390	7870	8470	8300	7400	11700	11400	12100	10900	6780	6670	5460
16	6780	8170	8400	8700	7400	10900	11300	12200	8900	7350	6700	5850
17	6170	7520	8500	8700	7200	10500	11200	12700	8620	6810	6700	6060
18	6060	7320	8100	8900	7600	10500	11600	14200	8320	5960	6390	4880
19	6700	6950	8500	8800	8200	10300	12500	15300	10200	6470	6390	4930
20	7320	6280	8400	8700	8000	10000	12900	15300	13000	6530	6450	5000
21	7460	5560	8200	8900	8000	10200	12500	16300	14300	6420	7150	4930
22	7410	5900	7800	9000	7900	10100	12200	17100	13900	6780	7210	5280
23	7380	7870	8300	8800	7800	9940	12500	16700	13500	7060	6530	5900
24	7670	10000	8800	9000	7600	9910	12100	16500	11600	6420	6810	6090
25	6980	9880	8700	9100	7400	9880	12200	16400	10300	6530	6750	4640
26	6920	9180	8300	9300	7900	9780	12400	17300	9620	6470	6500	4520
27	7290	8900	7400	9300	8500	9520	12300	19300	9300	6640	6950	4540
28	7010	7730	7500	9300	8300	9680	12600	19800	9080	6700	6870	5480
29	6700	8170	6800	8900	---	9940	13000	19700	8620	6500	6610	5330
30	7870	8350	6700	8900	---	10200	13100	19100	8530	6560	6730	4810
31	7350	---	7000	9000	---	10300	---	16500	---	6950	6390	---
TOTAL	216100	231670	243270	263500	234300	341950	348060	454700	354090	223450	204330	164950
MEAN	6971	7722	7847	8500	8368	11030	11600	14670	11800	7208	6591	5498
MAX	8320	10000	9330	9300	9800	19000	13100	19800	15100	8800	7210	6090
MIN	6060	5560	5530	7200	7200	7800	9780	11500	8320	5960	6150	4520
AC-FT	428600	459500	482500	522700	464700	678300	690400	901900	702300	443200	405300	327200

CAL YR 1978 TOTAL 4031910 MEAN 11050 MAX 26700 MIN 5530 AC-FT 7997000
WTR YR 1979 TOTAL 3280370 MEAN 8987 MAX 19800 MIN 4520 AC-FT 6507000

06109500 MISSOURI RIVER AT VIRGELLE, MT--Continued
(National Stream Quality Accounting Network)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1975 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1974 to current year.
WATER TEMPERATURES: October 1974 to current year.

INSTRUMENTATION.--Temperature recorder since July 23, 1976.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 712 micromhos Apr. 8, 1979; minimum daily, 112 micromhos Mar. 4, 1975.
WATER TEMPERATURES: Maximum, 27.0°C July 23, 1977; minimum, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 712 micromhos Apr. 8; minimum daily, 264 micromhos Nov. 29.
WATER TEMPERATURES: Maximum, 25.5°C July 21; minimum, 0.0°C on many days during November to March.

REVISIONS.--The concentrations for total recoverable cadmium and total recoverable lead for June 21, 1978 (1100 hours) were found in error and have been deleted.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE (DEG C) (00010)	TURBIDITY (NTU) (00076)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)
OCT 18...	1400	6060	0	439	8.4	15.0	10.5	1.5	11.2	109
NOV 15...	1115	6140	0	420	7.9	-10.0	.0	3.0	14.5	107
DEC 19...	0900	8500	0	457	8.2	-17.0	.0	1.4	13.3	100
JAN 17...	0930	6700	0	463	8.3	-20.0	.0	1.8	12.2	91
FEB 13...	1145	8300	1	462	7.9	9.0	.0	12	12.2	93
MAR 29...	1200	9910	73	552	8.2	5.0	3.0	22	12.0	99
APR 19...	0945	12500	2	589	8.5	9.0	7.5	39	10.5	95
MAY 16...	1030	12200	81	505	8.5	20.0	14.0	22	9.2	98
JUN 21...	1200	14800	0	499	8.4	24.0	16.5	200	8.3	92
JUL 19...	1230	6390	0	490	8.8	32.0	22.5	12	9.1	114
AUG 23...	0900	6340	0	501	8.5	22.0	19.0	17	8.0	94
SEP 27...	0945	4570	0	469	8.5	18.0	15.5	6.6	8.9	97

06109500 MISSOURI RIVER AT VIRGELLE, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)
OCT 18...	K3	21	190	40	48	17	22	.7	2.9	150
NOV 15...	K1	K6	180	45	46	17	21	.7	3.0	140
DEC 19...	110	190	190	35	46	17	21	.7	3.5	150
JAN 17...	110	96	200	49	50	18	26	.8	3.4	150
FEB 13...	100	K34	190	49	46	18	25	.8	3.0	140
MAR 29...	K5	53	230	83	57	22	32	.9	3.6	150
APR 19...	66	49	210	65	48	23	37	1.1	3.5	150
MAY 16...	K18	37	210	65	53	20	29	.9	2.7	150
JUN 21...	K880	K720	200	72	48	20	31	.9	3.3	130
JUL 19...	K9	K14	190	51	45	19	28	.9	3.2	140
AUG 23...	K16	24	190	51	45	19	27	.9	3.0	140
SEP 27...	K3	K6	190	49	46	18	26	.8	3.2	140

DATE	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)
OCT 18...	88	7.0	.7	10	272	286	.37	4450	.00	--
NOV 15...	77	7.6	.5	14	270	270	.37	5930	.08	--
DEC 19...	76	8.0	.6	15	283	277	.38	6500	.21	--
JAN 17...	79	8.1	.6	15	299	290	.41	7020	.29	--
FEB 13...	85	8.4	.6	17	287	287	.39	6430	.27	--
MAR 29...	150	8.7	.7	13	354	377	.48	9470	.39	--
APR 19...	130	8.6	.7	14	370	355	.50	12500	.28	--
MAY 16...	110	6.7	.5	9.3	321	321	.44	10600	.13	--
JUN 21...	130	7.2	.5	9.9	314	328	.43	12500	.32	--
JUL 19...	110	8.6	.6	9.6	295	308	.40	5090	.00	--
AUG 23...	120	8.7	.7	11	302	319	.41	5170	.02	--
SEP 27...	92	8.2	.7	12	284	290	.39	3500	.01	.00

06109500 MISSOURI RIVER AT VIRGELLE, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITROGEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITROGEN, KJELDAHL, TOTAL (MG/L AS N) (00625)	NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)	PHOSPHORUS, DISSOLVED (MG/L AS P) (00666)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CARBON, ORGANIC DISSOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUSPENDED TOTAL (MG/L AS C) (00689)
OCT 18...	.00	.47	.47	.22	.03	.02	3.1	--	--
NOV 15...	.01	.35	.36	.39	.06	.05	3.4	--	--
DEC 19...	.00	.40	.40	.37	.04	.03	--	3.0	.4
JAN 17...	.02	.48	.50	.27	.05	.04	2.8	--	--
FEB 13...	.03	.24	.27	.26	.05	.03	2.4	--	--
MAR 29...	.02	.19	.21	.15	.03	.02	--	3.1	--
APR 19...	.03	.56	.59	.20	.07	.01	5.2	--	--
MAY 16...	.01	.27	.28	.31	.07	.00	7.6	--	--
JUN 21...	.06	1.2	1.3	.50	.35	.02	--	8.3	4.8
JUL 19...	.03	.40	.43	.19	.03	.02	3.0	--	--
AUG 23...	.03	.38	.41	.32	.54	.01	6.3	--	--
SEP 27...	.13	.33	.46	.37	.04	.01	--	3.4	1.3

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DISSOLVED (UG/L AS AS) (01000)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA) (01007)	BARIUM, DISSOLVED (UG/L AS BA) (01005)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD) (01027)	CADMIUM DISSOLVED (UG/L AS CD) (01025)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)
DEC 19...	0900	19	18	0	--	1	2	20	0
MAR 29...	1200	14	13	0	0	0	0	10	0
JUN 21...	1200	10	8	200	0	2	1	20	0
SEP 27...	0945	16	16	200	100	0	<1	0	10

DATE	COBALT, TOTAL RECOVERABLE (UG/L AS CO) (01037)	COBALT, DISSOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)	COPPER, DISSOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)	IRON, DISSOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOVERABLE (UG/L AS PB) (01051)	LEAD, DISSOLVED (UG/L AS PB) (01049)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)
DEC 19...	1	<3	6	5	150	0	2	1	10
MAR 29...	1	0	8	0	1700	10	27	0	60
JUN 21...	9	6	26	1	12000	30	32	3	350
SEP 27...	0	<3	4	3	360	<10	13	0	30

DATE	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOVERABLE (UG/L AS HG) (71900)	MERCURY DISSOLVED (UG/L AS HG) (71890)	SELENIUM, TOTAL (UG/L AS SE) (01147)	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	SILVER, TOTAL RECOVERABLE (UG/L AS AG) (01077)	SILVER, DISSOLVED (UG/L AS AG) (01075)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)	ZINC, DISSOLVED (UG/L AS ZN) (01090)
DEC 19...	4	.0	.0	1	1	5	0	20	5
MAR 29...	10	.0	.0	1	1	0	0	30	10
JUN 21...	0	.1	.0	1	1	0	0	130	10
SEP 27...	<1	.2	.0	0	0	0	0	20	<3

06109500 MISSOURI RIVER AT VIRGELLE, MT--Continued

PESTICIDE ANALYSES, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	PCB, TOTAL (UG/L) (39516)	ALDRIN, TOTAL (UG/L) (39330)	CHLOR-DANE, TOTAL (UG/L) (39350)	DDD, TOTAL (UG/L) (39360)	DDE, TOTAL (UG/L) (39365)	DDT, TOTAL (UG/L) (39370)	DI-AZINON, TOTAL (UG/L) (39570)	DI-ELDRIN TOTAL (UG/L) (39380)	ENDRIN, TOTAL (UG/L) (39390)	ETHION, TOTAL (UG/L) (39398)
NOV 15...	1115	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FEB 13...	1145	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MAY 16...	1030	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AUG 23...	0900	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

DATE	HEPTA-CHLOR, TOTAL (UG/L) (39410)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L) (39420)	LINDANE TOTAL (UG/L) (39340)	MALA-THION, TOTAL (UG/L) (39530)	METH-OXY-CHLOR, TOTAL (UG/L) (39480)	METHYL PARA-THION, TOTAL (UG/L) (39600)	METHYL TRI-THION, TOTAL (UG/L) (39790)	PARA-THION, TOTAL (UG/L) (39540)	TOXA-PHENE, TOTAL (UG/L) (39400)	TOTAL TRI-THION (UG/L) (39786)
NOV 15...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FEB 13...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MAY 16...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AUG 23...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	469	398	314	506	533	---	704	475	437	505	492	460
2	472	359	308	478	503	---	599	402	450	503	496	---
3	457	405	446	486	522	---	594	498	439	492	502	---
4	463	290	568	476	522	---	599	423	440	502	477	---
5	462	370	402	---	522	---	710	497	451	491	486	---
6	461	389	408	478	482	---	709	419	408	483	480	---
7	476	417	446	486	523	---	598	452	447	502	506	---
8	466	386	418	476	522	---	712	463	455	508	486	478
9	468	469	432	484	519	---	676	462	397	489	478	---
10	450	433	488	476	473	---	709	477	429	494	490	480
11	473	425	453	454	522	---	596	419	411	489	486	---
12	463	430	392	502	490	---	598	457	406	501	488	---
13	464	410	560	487	522	---	549	408	430	488	476	---
14	462	406	390	485	498	---	596	450	408	502	479	---
15	470	342	440	478	480	---	596	442	429	500	490	---
16	466	466	402	472	500	---	641	445	442	482	498	478
17	468	402	555	474	518	---	643	449	462	476	491	---
18	459	412	552	482	513	542	597	534	488	488	493	---
19	448	383	556	457	474	637	627	472	491	486	508	---
20	463	364	557	474	518	619	605	474	619	473	491	476
21	462	336	473	478	458	520	599	446	479	495	482	---
22	468	429	418	455	522	638	640	450	450	482	484	---
23	450	310	338	486	453	518	639	447	449	482	496	---
24	463	358	374	477	519	550	597	440	438	495	482	---
25	448	381	423	477	518	533	598	462	437	491	486	480
26	459	427	372	471	520	518	597	426	458	494	490	---
27	449	376	556	474	520	607	631	439	456	503	478	---
28	448	402	407	480	522	559	598	425	490	500	489	---
29	450	264	342	480	---	612	652	453	451	499	478	---
30	449	289	---	480	---	518	580	443	439	499	481	---
31	452	---	418	480	---	600	---	421	---	496	487	---
MEAN	461	384	440	478	507	569	628	451	450	493	488	475

WTR YR 1979 MEAN 482 MAX 712 MIN 264

06109500 MISSOURI RIVER AT VIRGELLE, MT--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	14.0	12.5	13.5	7.5	6.0	6.5	.0	.0	.0	.0	.0	.0
2	13.0	11.5	12.5	8.0	6.5	7.0	.0	.0	.0	.0	.0	.0
3	12.0	11.0	11.5	8.5	7.5	8.0	.0	.0	.0	.0	.0	.0
4	11.5	10.5	11.0	8.0	7.0	8.0	.0	.0	.0	.0	.0	.0
5	12.0	10.0	11.0	7.0	6.0	6.5	.0	.0	.0	.0	.0	.0
6	11.5	10.0	11.0	6.0	5.0	5.5	.0	.0	.0	.0	.0	.0
7	12.0	10.0	11.0	7.5	6.0	7.0	.0	.0	.0	.0	.0	.0
8	12.5	10.5	11.5	7.5	6.0	7.0	.0	.0	.0	.0	.0	.0
9	12.5	10.5	12.0	5.5	.0	4.0	.0	.0	.0	.0	.0	.0
10	12.5	11.5	12.0	1.5	.0	1.0	.0	.0	.0	.0	.0	.0
11	12.0	11.0	11.5	1.0	.0	.5	.0	.0	.0	.0	.0	.0
12	11.0	10.0	10.5	.5	.0	.0	.0	.0	.0	.0	.0	.0
13	10.0	8.5	9.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
14	10.5	8.5	9.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
15	11.0	9.0	10.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
16	11.0	9.5	10.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
17	10.5	10.0	10.0	.5	.0	.0	.0	.0	.0	.0	.0	.0
18	11.0	9.5	10.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
19	11.5	10.0	10.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
20	11.5	10.0	10.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
21	11.0	9.5	10.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
22	9.5	8.5	9.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
23	10.0	8.5	9.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
24	9.5	8.0	8.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
25	8.0	7.0	7.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
26	8.0	6.5	7.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
27	7.5	7.0	7.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
28	8.0	7.0	7.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
29	8.0	7.5	7.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
30	7.0	6.0	6.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
31	7.0	5.5	6.5	---	---	---	.0	.0	.0	.0	.0	.0
MONTH	14.0	5.5	10.0	8.5	.0	2.0	.0	.0	.0	.0	.0	.0

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	.0	.0	.0	.0	.0	.0	3.5	2.5	3.0	10.5	9.5	10.0
2	.0	.0	.0	.0	.0	.0	4.5	3.0	3.5	11.0	8.5	10.0
3	.0	.0	.0	.0	.0	.0	4.5	3.0	3.5	10.5	8.5	9.5
4	.0	.0	.0	.0	.0	.0	4.0	3.0	3.5	9.0	8.0	8.5
5	.0	.0	.0	.0	.0	.0	3.0	2.0	2.5	9.5	8.5	9.0
6	.0	.0	.0	.0	.0	.0	4.5	1.5	3.5	9.5	8.5	9.0
7	.0	.0	.0	.0	.0	.0	6.0	5.0	5.5	8.5	8.0	8.5
8	.0	.0	.0	.0	.0	.0	7.5	5.0	6.5	8.5	7.5	8.0
9	.0	.0	.0	.0	.0	.0	8.5	7.0	7.5	9.0	7.5	8.0
10	.0	.0	.0	.0	.0	.0	7.5	5.5	6.5	10.0	7.5	9.0
11	.0	.0	.0	.0	.0	.0	5.5	5.0	5.5	10.5	10.0	10.0
12	.0	.0	.0	.0	.0	.0	5.5	4.5	5.0	11.5	9.5	10.5
13	.0	.0	.0	.0	.0	.0	6.5	5.0	5.5	12.0	10.0	11.0
14	.0	.0	.0	.0	.0	.0	7.0	5.0	6.0	13.5	10.5	12.0
15	.0	.0	.0	2.5	.0	1.0	8.0	6.0	7.0	15.0	12.0	13.5
16	.0	.0	.0	4.0	2.5	3.5	9.0	7.0	8.0	14.5	13.5	14.0
17	.0	.0	.0	4.0	3.5	4.0	10.5	8.5	9.5	14.0	12.5	13.0
18	.0	.0	.0	5.0	3.5	4.5	10.0	8.0	9.0	13.5	13.0	13.0
19	.0	.0	.0	5.0	4.0	4.5	9.0	7.5	8.0	14.0	12.5	13.0
20	.0	.0	.0	5.0	4.0	4.5	8.5	7.5	8.0	13.5	12.5	13.0
21	.0	.0	.0	5.5	3.5	4.5	8.5	7.0	8.0	14.5	12.5	13.5
22	.0	.0	.0	5.5	4.5	4.5	7.5	6.5	7.0	14.5	13.5	14.0
23	.0	.0	.0	5.0	4.0	4.5	7.0	6.0	6.5	15.0	14.0	14.5
24	.0	.0	.0	6.0	3.5	5.0	6.0	5.5	6.0	15.5	15.0	15.5
25	.0	.0	.0	5.5	3.0	4.5	7.5	5.5	6.5	16.5	15.0	16.0
26	.0	.0	.0	3.0	2.0	2.5	9.0	7.5	8.0	17.0	16.0	16.5
27	.0	.0	.0	2.5	1.5	2.0	9.5	7.5	8.5	17.0	16.0	16.5
28	.0	.0	.0	2.5	1.0	1.5	11.0	9.0	10.0	16.0	14.5	15.0
29	---	---	---	3.5	2.0	3.0	11.5	10.0	10.5	14.5	12.5	13.5
30	---	---	---	4.5	2.5	3.5	11.5	10.0	10.5	13.5	12.5	13.0
31	---	---	---	4.0	3.0	4.0	---	---	---	13.0	12.5	13.0
MONTH	.0	.0	.0	6.0	.0	2.0	11.5	1.5	6.5	17.0	7.5	12.0

06109500 MISSOURI RIVER AT VIRGELLE, MT--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	13.5	12.5	13.0	20.5	19.0	19.5	23.5	21.0	22.5	20.5	17.5	19.0
2	15.0	13.5	14.0	20.5	18.5	19.5	23.5	21.0	22.5	20.5	18.5	19.5
3	16.5	14.5	15.5	21.0	18.0	19.5	23.5	21.0	22.0	21.5	18.5	20.0
4	16.5	15.5	16.0	20.0	19.5	20.0	23.0	21.0	22.0	20.0	18.5	19.5
5	16.0	14.5	15.5	22.0	18.5	20.0	24.0	21.0	22.5	19.5	17.0	18.5
6	15.0	14.0	14.5	23.0	20.0	21.5	24.0	21.0	22.5	20.0	17.0	18.5
7	14.0	13.0	13.5	23.5	20.5	22.0	23.5	21.0	22.5	20.5	18.0	19.0
8	14.0	12.0	13.0	23.5	22.0	22.5	23.5	21.5	22.5	20.5	18.0	19.0
9	15.0	13.0	14.0	23.5	20.5	22.0	22.5	20.5	21.5	20.0	18.5	19.0
10	15.5	14.0	15.0	23.5	21.0	22.5	22.5	20.0	21.5	18.5	17.0	18.0
11	17.5	15.0	16.0	23.0	21.0	22.0	22.0	20.0	21.0	17.5	16.0	16.5
12	19.5	16.5	18.0	22.0	20.0	21.0	21.0	19.0	20.0	17.5	15.5	16.5
13	19.5	18.0	19.0	21.5	19.5	20.5	20.5	19.0	20.0	18.0	16.0	17.0
14	19.5	17.5	18.5	21.0	19.5	20.5	19.5	17.5	18.5	18.0	15.5	17.0
15	18.5	17.0	18.0	21.5	19.0	20.0	22.0	18.5	20.0	18.0	15.5	17.0
16	18.0	16.5	17.5	22.5	19.5	21.0	22.0	19.5	21.0	18.5	16.0	17.5
17	19.5	16.5	18.0	23.5	19.5	21.5	22.0	19.5	21.0	18.5	16.0	17.5
18	19.5	18.0	18.5	24.5	21.0	23.0	22.5	20.0	21.0	18.5	16.0	17.5
19	18.5	17.5	18.0	24.5	22.5	23.5	22.0	20.0	21.0	18.0	16.5	17.5
20	18.0	16.0	17.0	25.0	22.0	24.0	21.5	20.0	21.0	18.5	16.0	17.0
21	18.0	16.5	17.5	25.5	22.5	24.5	21.0	20.0	20.5	18.0	16.0	17.0
22	18.0	17.0	17.5	24.5	22.5	23.5	21.0	19.5	20.0	17.5	16.0	16.5
23	19.0	17.0	18.0	23.5	21.0	22.5	22.0	19.5	21.0	18.0	15.5	16.5
24	20.0	18.0	19.0	22.5	20.5	21.5	21.5	19.5	20.5	17.5	15.5	16.5
25	21.0	18.0	19.5	20.5	18.5	19.0	19.5	18.0	19.0	17.5	15.0	16.0
26	22.0	19.0	20.5	19.5	17.5	18.5	21.0	18.5	19.5	17.0	16.0	16.5
27	22.5	20.5	21.5	22.0	19.0	20.5	21.5	19.0	20.0	17.0	15.5	16.0
28	23.0	20.5	22.0	22.5	20.0	21.5	20.5	18.5	19.5	16.0	15.0	15.5
29	23.5	21.0	22.5	22.0	20.0	21.0	21.0	18.5	20.0	16.0	14.0	15.0
30	22.5	20.5	21.5	23.0	20.5	21.5	21.5	19.0	20.5	15.0	14.0	14.5
31	---	---	---	23.5	20.5	22.0	20.5	19.0	20.0	---	---	---
MONTH	23.5	12.0	17.5	25.5	17.5	21.5	24.0	17.5	21.0	21.5	14.0	17.5
YEAR	25.5	.0	9.0									

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPER- ATURE (DEG C) (00010)	STREAM- FLOW, INSTAN- TANEOUS (CFS) (00061)	SEDI- MENT, SUS- PENDED (MG/L) (80154)	SEDI- MENT DIS- CHARGE, SUS- PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT 18...	1400	10.5	6060	12	196	84
NOV 15...	1115	.0	8140	48	1050	--
DEC 19...	0900	.0	8500	8	184	--
JAN 17...	0930	.0	8700	9	211	--
FEB 13...	1145	.0	8300	6	134	--
MAR 29...	1200	3.0	9910	106	2840	70
APR 19...	0945	7.5	12500	192	6480	63
MAY 16...	1030	14.0	12200	104	3430	76
JUN 21...	1200	16.5	14800	553	22100	93
JUL 19...	1230	22.5	6390	34	587	89
AUG 23...	0900	19.0	6340	41	702	92
SEP 27...	0945	15.5	4570	22	271	92

06109500 MISSOURI RIVER AT VIRGELLE, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	WEATHER (WMO CODE NUMBER) (00041)
AUG									
23...	0800	498	8.5	16.0	19.0	7.9	93	696	0
23...	0900	501	--	22.0	19.0	8.0	94	696	0
23...	1000	--	--	--	19.5	8.4	99	--	--
23...	1100	502	8.7	25.0	19.5	9.0	107	695	0
23...	1200	--	--	--	20.0	9.4	113	--	--
23...	1300	500	8.7	27.0	20.5	9.7	117	694	0
23...	1400	--	--	--	21.0	10.1	123	--	--
23...	1500	500	8.8	27.5	21.5	10.3	127	693	0
23...	1600	--	--	--	22.0	10.4	130	--	--
23...	1700	--	--	--	22.0	10.7	134	--	--
23...	1800	510	8.6	30.0	22.0	10.6	133	692	0
23...	1900	--	--	--	22.0	10.3	129	--	--
23...	2000	505	8.6	22.5	22.0	9.6	120	692	2
23...	2100	501	8.6	20.0	21.5	9.4	116	693	2
23...	2200	--	--	--	21.5	9.1	112	--	--
23...	2300	--	--	--	21.5	8.7	108	--	--
23...	2400	--	--	--	21.5	8.5	105	--	--
24...	0100	--	--	--	21.0	8.3	102	--	--
24...	0200	--	--	--	21.0	8.2	100	--	--
24...	0300	--	--	--	21.0	7.9	97	--	--
24...	0400	--	--	--	20.5	7.9	96	--	--
24...	0500	--	--	--	20.5	7.9	96	--	--
24...	0600	500	8.5	14.0	20.0	7.9	95	695	1
24...	0700	496	8.5	14.0	20.0	7.9	95	696	1
24...	0800	500	8.6	15.0	20.0	7.9	95	696	1

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

PERIPHYTON

DATE	TIME	LENGTH OF EXPO-SURE (DAYS) (00022)	PERI-PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M (00573)	PERI-PHYTON BIOMASS ASH WEIGHT G/SQ M (00572)	CHLOR-A PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2) (70957)	CHLOR-B PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2) (70958)	BIOMASS CHLORO-PHYLL RATIO PERI-PHYTON (UNITS) (70950)
OCT							
18...	1400	41	5.00	4.30	1.33	.170	526

06109500 MISSOURI RIVER AT VIRGELLE, MT--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

PHYTOPLANKTON

DATE	NOV 15,78	MAR 29,79	MAY 16,79	JUN 21,79
TIME	1115	1200	1030	1200
TOTAL CELLS/ML	810	6300	8100	3600
DIVERSITY: DIVISION	0.6	0.1	0.8	1.4
.CLASS	0.6	0.1	0.8	1.4
..ORDER	1.4	0.6	1.4	1.4
...FAMILY	2.1	0.7	1.7	1.9
....GENUS	2.2	0.7	0.0	2.0

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)								
.CHLOROPHYCEAE								
..CHLOROCOCCALES								
...MICRACTINIACEAE								
....MICRACTINIUM	--	-	--	-	330	4	--	-
...OOCYSTACEAE								
....ANKISTRODESMUS	--	-	--	-	130	2	--	-
....OOCYSTIS	14	2	--	-	--	-	--	-
..TETRASPORALES								
...COCCOMYXACEAE								
....ELAKATOTHRIX	--	-	--	-	200	2	--	-
..VOLVOCALES								
...CHLAMYDOMONADACEAE	--	-	--	-	200	2	--	-
....CHLAMYDOMONAS	--	-	110	2	--	-	77	2
..ZYGNEMATALES								
...DESMIDIACEAE								
....CLOSTERIUM	14	2	--	-	--	-	--	-
CHRYSOPHYTA								
.BACILLARIOPHYCEAE								
..CENTRALES								
...COSCINODISCACEAE								
....CYCLOTELLA	14	2	5600#	88	5800#	71	--	-
....MELOSIRA	170#	21	--	-	--	-	--	-
..PENNALES								
...DIATOMACEAE								
....DIATOMA	72	9	--	-	400	5	--	-
...FRAGILARIACEAE								
....ASTERIONELLA	--	-	--	-	--	-	930#	26
....SYNEDRA	43	5	--	-	--	-	77	2
...GOMPHONEMATACEAE								
....GOMPHONEMA	14	2	160	2	--	-	--	-
...NAVICULACEAE								
....NAVICULA	400#	50	420	7	200	2	77	2
....PINNULARIA	--	-	--	-	330	4	--	-
....STAURONEIS	--	-	--	-	67	1	--	-
...NITZSCHIACEAE								
....NITZSCHIA	--	-	53	1	67	1	310	9
...SURIRELLACEAE								
....SURIRELLA	--	-	--	-	--	-	77	2
CRYPTOPHYTA (CRYPTOMONADS)								
.CRYPTOPHYCEAE								
..CRYPTOMONADALES								
...CRYPTOCHRYSIDACEAE								
....CHROOMONAS	--	-	--	-	270	3	--	-
...CRYPTOMONADACEAE								
....CRYPTOMONAS	--	-	--	-	130	2	77	2
CYANOPHYTA (BLUE-GREEN ALGAE)								
.CYANOPHYCEAE								
..CHROOCOCCALES								
...CHROOCOCCACEAE								
....ANACYSTIS	58	7	--	-	--	-	--	-
..HORMOGONALES								
...OSCILLATORIACEAE								
....OSCILLATORIA	--	-	--	-	--	-	1900#	53
EUGLENOPHYTA (EUGLENOIDS)								
.EUGLENOPHYCEAE								
..EUGLENALES								
...EUGLENACEAE								
....TRACHELOMONAS	--	-	--	-	--	-	77	2

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

06109500 MISSOURI RIVER AT VIRGELLE, MT--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

PHYTOPLANKTON

DATE	JUL 19,79		AUG 23,79		SEP 27,79	
TIME	1230		0900		0945	
TOTAL CELLS/ML	9500		4600		6400	
DIVERSITY: DIVISION	0.9		1.6		1.5	
.CLASS	0.9		1.6		1.5	
..ORDER	1.6		2.2		2.0	
...FAMILY	1.8		3.0		2.3	
....GENUS	2.0		3.3		2.6	
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...CHARACIACEAE						
....SCHROEDERIA	170	2	140	3	180	3
...HYDRODICTYACEAE						
....PEDIASTRUM	--	-	320	7	200	3
...MICRACTINIACEAE						
....MICRACTINIUM	85	1	170	4	--	-
...OOCYSTACEAE						
....ANKISTRODESMUS	250	3	100	2	*	0
....CHODATELLA	--	-	*	0	--	-
....SELENASTRUM	--	-	*	0	--	-
...SCENEDESMACEAE						
....ACTINASTRUM	--	-	110	3	--	-
....SCENEDESMUS	170	2	460	10	150	2
....TETRASTRUM	350	4	--	-	--	-
..TETRASPORALES						
...COCCOMYXACEAE						
....ELAKATOTHRIX	--	-	29	1	--	-
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CHLAMYDOMONAS	1100	11	72	2	--	-
CHRYSOPHYTA						
.BACILLARIOPHYCEAE						
..CENTRALES						
...COSCINODISCACEAE						
....CYCLOTELLA	6000#	63	1300#	28	1700#	27
....MELOSIRA	170	2	230	5	450	7
....STEPHANODISCUS	--	-	--	-	350	5
..PENNALES						
...ACHNANTHACEAE						
....ACHNANTHES	--	-	*	0	--	-
....COCCONEIS	--	-	43	1	--	-
...CYMBELLACEAE						
....CYMBELLA	85	1	--	-	--	-
...FRAGILARIACEAE						
....ASTERIONELLA	--	-	--	-	50	1
....FRAGILARIA	--	-	57	1	300	5
....SYNEDRA	--	-	--	-	*	0
...GOMPHONEMATACEAE						
....GOMPHONEMA	--	-	*	0	--	-
...NAVICULACEAE						
....NAVICULA	--	-	57	1	50	1
...NITZSCHIACEAE						
....NITZSCHIA	1000	11	300	7	100	2
CRYPTOPHYTA (CRYPTOMONADS)						
.CRYPTOPHYCEAE						
..CRYPTOMONADALES						
...CRYPTOCHRYSIDACEAE						
....CHROOMONAS	--	-	72	2	150	2
...CRYPTOMONADACEAE						
....CRYPTOMONAS	--	-	*	0	*	0
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..CHROOCOCCALES						
...CHROOCOCCACEAE						
....ANACYSTIS	--	-	43	1	350	5
..HORMOGONALES						
...OSCILLATORIACEAE						
....OSCILLATORIA	--	-	1000#	22	2300#	35
EUGLENOPHYTA (EUGLENOIDS)						
.EUGLENOPHYCEAE						
..EUGLENALES						
...EUGLENACEAE						
....TRACHELOMONAS	170	2	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

06109780 MIDDLE FORK JUDITH RIVER NEAR UTICA, MT

LOCATION.--Lat 46°50'56", long 110°16'17", in SE¼NW¼ sec.36, T.13 N., R.11 E., Judith Basin County, Hydrologic Unit 10040103, on left bank, 67 ft (20 m) downstream from county highway bridge, 630 ft (192 m) upstream from confluence with South Fork, and 12.8 mi (20.6 km) southwest of Utica.

DRAINAGE AREA.--160 mi² (414 km²).

PERIOD OF RECORD.--July 1972 to September 1979 (discontinued).

GAGE.--Water-stage recorder. Altitude of gage is 4,940 ft (1,506 m), from topographic map.

REMARKS.--Records good except those for winter period, which are poor. Diversions for irrigation of about 300 acres (1.21 km²), all of which lies below station. Several observations of water temperature were made during the year and are available in files of Helena district office.

AVERAGE DISCHARGE.--7 years, 49.3 ft³/s (1.396 m³/s), 35,720 acre-ft/yr (44.0 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,650 ft³/s (46.7 m³/s) June 20, 1975, gage height, 5.59 ft (1.704 m); maximum gage height, 6.47 ft (1.972 m) Dec. 31, 1973 (backwater from ice); no flow at times most years.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 110 ft³/s (3.12 m³/s) and maximums (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
May 28	0930	452	12.8	3.28	1.000	June 19	1500	*609	17.2	*3.63	1.106
June 7	0400	289	8.18	2.84	0.866						

No flow on many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23	13	6.0	2.0	.00	.00	2.0	17	236	163	37	17
2	22	13	4.0	.50	.00	.00	1.5	19	208	152	35	16
3	23	13	3.5	1.0	.00	.00	2.0	21	203	142	34	16
4	22	13	5.0	.50	.00	.00	2.5	21	224	134	33	15
5	21	13	7.0	.00	.00	.50	3.0	27	253	124	32	15
6	21	13	5.0	.00	.00	1.0	4.0	44	282	113	30	15
7	21	13	3.5	.00	.00	1.5	5.0	48	279	106	29	14
8	19	13	5.0	.00	.00	2.0	6.0	42	250	103	28	14
9	19	12	6.0	.00	.00	1.8	7.0	38	221	103	27	14
10	19	5.0	6.5	.00	.00	1.6	8.0	34	197	92	27	20
11	19	.20	7.0	.00	.00	1.8	7.5	33	185	87	25	18
12	18	2.0	6.5	.00	.00	2.0	7.0	33	187	82	25	17
13	19	3.0	6.0	.00	.00	1.8	7.0	34	195	76	25	16
14	18	4.0	5.0	.00	.00	1.8	8.0	40	205	73	29	15
15	18	6.0	6.0	.00	.00	2.0	9.0	56	200	70	26	14
16	18	8.0	5.5	.00	.00	2.5	10	108	190	66	23	14
17	17	9.0	5.0	.00	.00	3.0	11	144	177	62	22	13
18	18	7.0	4.5	.00	.00	2.8	12	150	216	59	22	13
19	17	3.5	4.0	.00	.00	2.6	14	152	423	58	24	12
20	17	4.0	3.5	.00	.00	2.4	16	152	504	58	23	12
21	16	5.0	4.0	.00	.00	2.4	20	155	444	54	21	12
22	16	6.0	4.5	.00	.00	2.6	25	180	385	52	24	12
23	16	7.0	5.0	.00	.00	2.8	19	208	334	51	21	12
24	16	8.0	5.5	.00	.00	3.0	13	250	292	49	19	11
25	16	7.5	6.0	.00	.00	2.5	11	279	263	49	20	11
26	15	8.0	5.0	.00	.00	2.0	10	312	239	48	23	10
27	15	8.5	4.0	.00	.00	2.4	10	377	219	44	25	10
28	15	9.0	3.0	.00	.00	2.8	12	436	200	45	21	9.8
29	15	8.0	2.0	.00	---	2.6	12	396	180	45	19	9.4
30	15	7.0	2.5	.00	---	2.4	13	334	182	42	18	9.4
31	14	---	3.0	.00	---	2.2	---	275	---	40	18	---
TOTAL	558	241.70	149.0	4.00	.00	58.80	287.5	4415	7573	2442	785	406.6
MEAN	18.0	8.06	4.81	.13	.000	1.90	9.58	142	252	78.8	25.3	13.6
MAX	23	13	7.0	2.0	.00	3.0	25	436	504	163	37	20
MIN	14	.20	2.0	.00	.00	.00	1.5	17	177	40	18	9.4
AC-FT	1110	479	296	7.9	.00	117	570	8760	15020	4840	1560	806

CAL YR 1978 TOTAL 23615.50 MEAN 64.7 MAX 446 MIN .00 AC-FT 46840
WTR YR 1979 TOTAL 16920.60 MEAN 46.4 MAX 504 MIN .00 AC-FT 33560

06109800 SOUTH FORK JUDITH RIVER NEAR UTICA, MT

LOCATION.--Lat 46°45'00", long 110°18'54", in SE¼NE¼SW¼ sec.34, T.12 N., R.11 E., Judith Basin County, Hydrologic Unit 10040103, Lewis and Clark National Forest, on right bank just downstream from Trask Gulch, 8 mi (13 km) upstream from confluence with Middle Fork, and 18 mi (29 km) southwest of Utica.

DRAINAGE AREA.--58.7 mi² (152.0 km²).

PERIOD OF RECORD.--August 1958 to September 1979 (discontinued).

GAGE.--Water-stage recorder. Altitude of gage is 5,420 ft (1,650 m), from topographic map.

REMARKS.--Records good. Minor diversions for irrigation above station. Several observations of water temperature were made during the year and are available in files of Helena district office.

AVERAGE DISCHARGE.--20 years, 22.7 ft³/s (0.643 m³/s), 16,450 acre-ft/yr (20.3 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,950 ft³/s (55.2 m³/s) June 19, 1979, gage height, 7.70 ft (2.347 m), from rating curve extended above 420 ft³/s (11.9 m³/s) on basis of slope-area measurement; minimum daily, 1.0 ft³/s (0.028 m³/s) Nov. 27, 1958.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 19, 1979, is the highest since 1927, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 80 ft³/s (2.27 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
May 6	0100	152	4.30	3.86	1.177	May 16	2330	392	11.1	4.85	1.478
June 19	1100	*1,950	55.2	*7.70	2.347						

Minimum discharge, 2.3 ft³/s (0.065 m³/s) Nov. 10, gage height, 2.19 ft (0.668 m), result of freezeup; minimum gage height, 2.04 ft (0.622 m) Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.0	6.8	5.4	5.0	5.0	3.9	6.2	58	133	71	18	9.8
2	9.0	6.8	5.7	6.5	4.7	3.8	6.2	54	120	66	18	9.8
3	8.7	6.8	5.9	6.2	4.5	4.0	6.2	56	115	61	17	9.8
4	8.3	6.8	5.7	5.9	4.3	3.9	6.2	74	106	61	17	10
5	8.0	5.0	5.5	5.9	4.1	4.1	6.2	116	101	56	17	9.4
6	8.0	5.9	5.0	5.4	4.1	4.3	6.8	141	96	51	16	9.0
7	8.0	6.8	4.5	5.4	4.1	5.7	8.3	113	94	47	16	8.7
8	7.7	6.5	6.0	5.2	4.3	5.9	9.0	97	88	49	15	8.7
9	7.7	5.0	6.5	4.7	4.1	5.4	11	86	82	51	15	8.3
10	7.4	3.2	5.4	4.5	4.1	5.0	12	81	77	42	14	11
11	7.4	6.5	5.2	4.5	4.1	5.2	9.8	83	73	39	14	10
12	7.4	7.1	5.2	4.5	4.1	5.7	9.8	91	68	37	14	9.8
13	7.4	6.5	5.2	4.5	4.5	5.4	9.0	112	63	35	14	9.4
14	7.4	6.2	5.2	4.7	4.0	5.4	9.0	147	61	33	15	8.7
15	7.4	5.9	5.2	4.7	4.2	5.9	10	209	58	32	14	8.3
16	7.4	5.9	5.0	4.7	4.4	6.8	15	295	57	31	13	8.0
17	7.7	6.2	5.0	4.5	4.1	7.7	29	308	64	28	12	7.7
18	8.7	5.5	5.0	4.3	4.1	6.5	42	273	191	27	13	7.7
19	8.0	5.0	5.0	4.3	4.1	5.7	33	246	953	25	14	7.7
20	7.4	4.5	5.0	4.3	4.1	5.7	28	224	440	25	13	7.7
21	7.4	5.5	5.0	4.3	3.9	5.9	26	224	290	23	14	7.7
22	7.4	5.9	5.0	4.3	3.8	5.4	26	222	228	23	13	7.7
23	7.1	5.9	5.0	4.3	4.0	5.4	26	209	185	23	12	7.7
24	7.1	5.7	5.0	4.3	3.9	5.9	24	213	136	22	13	7.4
25	6.8	5.4	4.7	4.3	3.9	5.7	22	199	131	33	14	7.1
26	6.8	5.4	5.0	4.3	3.9	7.1	21	183	112	25	13	7.1
27	6.8	5.4	4.7	4.5	3.9	6.5	22	185	105	23	12	7.1
28	6.8	5.4	4.7	4.5	3.9	6.8	31	201	92	24	12	7.1
29	6.8	5.4	4.5	4.7	---	6.5	43	176	82	27	11	7.1
30	5.4	5.4	4.0	5.0	---	6.2	52	161	82	22	11	7.1
31	5.2	---	3.5	5.0	---	6.2	---	151	---	20	10	---
TOTAL	231.6	174.3	157.7	149.2	116.2	173.6	565.7	4990	4483	1132	434	252.6
MEAN	7.47	5.81	5.09	4.81	4.15	5.60	18.9	161	149	36.5	14.0	8.42
MAX	9.0	7.1	6.5	6.5	5.0	7.7	52	308	953	71	18	11
MIN	5.2	3.2	3.5	4.3	3.8	3.8	6.2	54	57	20	10	7.1
AC-FT	459	346	313	296	230	344	1120	9900	8890	2250	861	501

CAL YR 1978 TOTAL 11299.6 MEAN 31.0 MAX 272 MIN 3.0 AC-FT 22410
WTR YR 1979 TOTAL 12859.9 MEAN 35.2 MAX 953 MIN 3.2 AC-FT 25510

06115200 MISSOURI RIVER NEAR LANDUSKY, MT

LOCATION.--Lat 47°37'51", long 108°41'13", in NW¼NE¼ sec.31, T.22 N., R.24 E., Fergus County, Hydrologic Unit 10040104, Fort Peck Game Range, on right bank 380 ft (116 m) upstream from bridge on U.S. Highway 191, 0.9 mi (1.4 km) upstream from Armells Creek, 20 mi (32 km) south of Landusky, and at mile 1,921.61 (3,091.87 km).

DRAINAGE AREA.--40,987 mi² (106,156 km²). Area at site used prior to Dec. 13, 1968, 40,763 mi² (105,576 km²).

PERIOD OF RECORD.--February 1934 to current year. Prior to October 1968, published as "at powerplant ferry, near Zortman."

REVISED RECORDS.--WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,239.96 ft (682.740 m) National Geodetic Vertical Datum of 1929 (State Highway bench mark). Prior to Feb. 7, 1935, nonrecording gage, and Feb. 7, 1935, to Dec. 12, 1968, water-stage recorder, at site 16.5 mi (26.5 km) upstream at datum 33.06 ft (10.077 m) higher.

REMARKS.--Water-discharge records fair except those for winter period, which are poor. Flow regulated by 24 smaller irrigation reservoirs and powerplants, Clark Canyon Reservoir, Canyon Ferry Reservoir, and Lake Elwell. Diversions for irrigation of about 870,400 acres (3,520 km²) above station. Several observations of water temperature were made during the year and are available in files of Helena district office.

AVERAGE DISCHARGE.--45 years, 9,388 ft³/s (265.9 m³/s), 6,802,000 acre-ft/yr (9.39 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 137,000 ft³/s (3,880 m³/s) June 6, 1953, gage height, 22.20 ft (6.767 m), from graph based on gage readings, site and datum then in use; maximum gage height, 30.16 ft (9.193 m) Mar. 19, 1947 (ice jam), from floodmark, site and datum then in use; maximum gage height, present site and datum, 34.17 ft (10.418 m) Mar. 26, 1978 (ice jam), from floodmark; minimum discharge, 1,120 ft³/s (31.7 m³/s) July 8, 1936, gage height, 1.92 ft (0.585 m), site and datum then in use.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, undetermined, Mar.9; maximum gage height observed, 27.84 ft (8.486 m) Mar. 9 (backwater from ice); minimum daily discharge, 4,600 ft³/s (130 m³/s) Sept. 27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8160	8160	10500	9200	11800	10500	12600	14900	18600	10400	7450	6800
2	7900	8560	10700	9400	11200	10400	12300	14800	17400	10000	7720	6570
3	8440	8560	10700	10200	11000	10100	11800	14900	16300	9620	7230	5860
4	7860	8630	10200	10500	11200	10300	12200	14900	16300	10200	7080	6000
5	7860	8160	7700	11000	11200	10200	11400	14200	15400	10600	7020	6060
6	8440	8320	10000	10700	11300	12500	11400	15000	14700	10100	7100	6400
7	8320	8210	9800	10800	11700	17000	12900	15800	15800	9850	7080	6060
8	8210	8250	10000	10500	12300	22000	13600	16900	16200	9740	6970	6200
9	8020	8320	9700	10000	11800	30000	14000	15900	16400	9420	7040	6160
10	8210	8210	9600	10000	11700	28000	14500	14100	15800	9590	7150	6000
11	8160	8320	8400	10000	11500	26000	15300	13700	15200	8750	6610	6380
12	7680	8200	9200	10200	11500	25000	14900	13600	14500	8040	7150	5650
13	7170	8000	10000	10300	11300	24000	14400	13500	14100	8090	6760	5840
14	7230	8000	11500	10400	10500	23000	13900	13400	13500	7810	6820	6360
15	7230	8400	11500	10900	9900	23000	13700	13400	12800	7590	6840	5920
16	7810	8500	10500	10700	9700	21500	13600	13900	12400	7680	6720	5880
17	7750	8800	10500	11100	9700	20500	13700	14100	11300	7900	7080	5710
18	7810	8700	10500	11200	9500	19500	14100	14700	10400	8390	7060	6260
19	7770	8600	10300	11300	10000	18500	15000	16200	10800	6800	6890	6000
20	7950	8200	10700	11200	10500	17500	15200	17600	13900	6840	6820	4850
21	8200	7600	10600	11200	10400	17000	15400	17700	16100	7300	6760	5180
22	8850	7000	10500	11500	10300	16500	14700	18400	17000	7250	7650	5100
23	8700	8000	10200	11500	10200	16000	14600	19100	16100	7150	6990	5060
24	8580	10000	10500	11500	10200	15000	17000	19100	15300	7340	7250	5030
25	8900	12000	11100	11500	9900	14500	16700	18800	14500	7170	7230	6100
26	8320	12000	11000	11600	9700	14200	15500	19100	13000	7040	7250	5980
27	7860	11500	10500	11700	9900	13100	15100	19900	12100	7150	7150	4600
28	8250	11000	9800	11700	10800	12600	14900	21400	11500	7300	6820	4700
29	8390	9800	9800	11700	---	12000	14800	22400	11000	7450	7250	4650
30	7630	10400	9000	11300	---	12500	14900	21600	12000	7360	7100	4930
31	8370	---	9000	11300	---	12900	---	20700	---	6950	6780	---
TOTAL	250030	266420	314000	335900	300700	535800	424100	513700	430400	256870	220840	172240
MEAN	8065	8881	10130	10840	10740	17280	14140	16570	14350	8286	7124	5743
MAX	8900	12000	11500	11700	12300	30000	17000	22400	18600	10600	6990	6800
MIN	7170	7000	7700	9200	9500	10100	11400	13400	10400	6800	6610	4600
AC-FT	495900	528400	622800	666300	596400	1063000	841200	1019000	853700	509500	438000	341700

CAL YR 1978 TOTAL 4651570 MEAN 12740 MAX 66000 MIN 5600 AC-FT 9226000
WTR YR 1979 TOTAL 4021050 MEAN 11020 MAX 30000 MIN 4600 AC-FT 7976000

06115200 MISSOURI RIVER NEAR LANDUSKY, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1972 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: March to September 1979.
WATER TEMPERATURES: March to September 1979.
SUSPENDED SEDIMENT DISCHARGE: October 1971 to current year.

REMARKS.--Prior to July 1972, sampling and record computations under supervision of Corps of Engineers, U.S. Army. Flow affected by ice during most of winter months. Due to ice flow and poor ice conditions no sediment samples were obtained and no loads computed Nov. 30 to Jan. 27.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SEDIMENT CONCENTRATIONS: Maximum daily mean, 27,400 mg/L June 22, 1976; minimum daily mean, 5 mg/L on several days during December 1971 and January 1972.
SEDIMENT LOADS: Maximum daily, 1,680,000 tons (1,520,000 megagrams) June 22, 1976; minimum daily, 82 tons (74 megagrams) Dec. 27, 1971.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily 1,240 micromhos June 20; minimum daily, 467 micromhos June 1.
WATER TEMPERATURES: Maximum daily, 24.0°C on several days during June to August; minimum daily, 0.5°C on several days during March.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 23,300 mg/L June 23; minimum daily mean, 56 mg/L Nov. 16.
SEDIMENT LOADS: Maximum daily, 1,010,000 tons (916,000 megagrams) June 23; minimum daily, 1,290 tons (1,170 megagrams) Nov. 16.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE (DEG C) (00010)	TURBIDITY (NTU) (00076)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)
APR										
06...	1100	11400	1	780	8.3	9.0	3.0	58	12.1	98
25...	1215	16200	1	970	8.2	15.0	7.0	600	9.9	88
MAY										
23...	1200	18300	0	512	8.3	23.0	18.0	96	8.2	93
JUL										
02...	1330	9640	0	570	8.4	25.0	21.0	140	8.0	97
25...	1030	7170	3	535	8.6	19.5	22.0	16	7.7	95
AUG										
22...	1200	7240	1	680	8.2	23.0	20.5	1100	7.2	86
SEP										
26...	1400	5760	1	510	8.6	23.0	18.0	14	8.9	102

DATE	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY (MG/L AS CACO3) (00410)
APR										
06...	K10	K80	310	140	67	34	56	1.4	3.5	170
25...	K60	800	300	150	67	31	96	2.4	3.9	150
MAY										
23...	--	K25	210	67	50	20	29	.9	2.7	140
JUL										
02...	52	44	240	90	60	22	30	.8	3.3	150
25...	K14	K10	210	56	46	22	32	1.0	3.1	150
AUG										
22...	650	1600	220	85	52	23	66	1.9	4.3	140
SEP										
26...	K10	K4	200	61	49	19	27	.8	3.4	140

06115200 MISSOURI RIVER NEAR LANDUSKY, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)
APR									
06...	230	9.6	.7	15	519	518	.71	16000	.49
25...	320	20	.7	9.2	672	638	.91	29400	.45
MAY									
23...	110	5.6	.5	9.6	321	312	.44	15900	.20
JUL									
02...	150	7.9	.6	8.4	362	372	.49	9420	.01
25...	120	9.1	.7	9.4	328	333	.45	6350	.01
AUG									
22...	210	8.8	.8	8.3	451	457	.61	8820	.09
SEP									
26...	110	8.4	.8	10	318	312	.43	4950	.01

DATE	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN,AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C) (00689)
APR									
06...	.02	.42	.44	.19	.08	.01	4.3	--	--
25...	.04	3.6	3.6	.38	.87	.02	--	11	2.8
MAY									
23...	.01	.67	.68	.25	.02	.01	3.6	--	--
JUL									
02...	.00	.66	.66	.19	.17	.02	6.2	--	--
25...	.03	.37	.40	.26	.03	.04	--	1.5	.4
AUG									
22...	.06	3.1	3.2	.16	.90	.39	13	--	--
SEP									
26...	.07	--	--	--	--	.00	4.8	--	--

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)
APR									
25...	1215	28	4	500	0	0	1	40	10
JUL									
25...	1030	9	8	200	50	0	<1	10	0

DATE	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO) (01037)	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)
APR									
25...	23	0	83	9	50000	160	81	0	820
JUL									
25...	3	<3	28	5	220	<10	7	0	60

06115200 MISSOURI RIVER NEAR LANDUSKY, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOVERABLE (UG/L AS HG) (71900)	MERCURY DISSOLVED (UG/L AS HG) (71890)	SELENIUM, TOTAL (UG/L AS SE) (01147)	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	SILVER, TOTAL RECOVERABLE (UG/L AS AG) (01077)	SILVER, DISSOLVED (UG/L AS AG) (01075)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)	ZINC, DISSOLVED (UG/L AS ZN) (01090)
APR									
25...	20	.4	.1	6	2	0	0	260	40
JUL									
25...	<1	.0	.0	1	1	0	0	40	<3

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1						612	852	775	467	569	541	503
2						612	816	750	470	572	539	501
3						616	815	739	479	579	532	510
4						617	823	821	488	698	528	510
5						635	807	848	495	683	525	515
6						638	924	863	521	615	525	512
7						733	791	841	519	596	522	501
8						980	995	779	501	556	520	504
9						867	979	758	480	541	517	508
10						796	958	732	469	543	513	505
11						784	934	731	480	538	509	503
12						849	921	674	480	553	510	509
13						950	923	716	494	551	511	512
14						906	---	713	538	562	515	506
15						850	---	721	495	548	522	501
16						870	895	704	500	547	516	498
17						916	887	681	519	541	519	495
18						925	858	668	535	539	510	501
19						895	911	631	528	517	516	510
20						887	819	603	1240	540	520	505
21						852	759	601	870	541	698	512
22						861	744	572	578	526	529	509
23						869	769	531	571	546	532	510
24						848	843	526	562	532	511	511
25						943	924	555	559	539	515	512
26						862	956	535	554	544	513	512
27						803	863	507	548	536	522	512
28						785	822	502	556	546	529	513
29						774	904	500	548	541	530	512
30						810	827	486	549	529	521	509
31						853	---	475	---	530	511	---
MEAN						813	869	663	553	558	526	507

WTR YR 1979 MEAN 639 MAX 1240 MIN 467

06115200 MISSOURI RIVER NEAR LANDUSKY, MT--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1						.5	3.5	11.0	15.0	21.5	22.5	21.0
2						.5	4.0	11.0	16.0	21.5	21.5	21.5
3						.5	3.0	10.5	17.0	22.0	23.0	22.0
4						.5	4.0	10.0	16.0	22.0	24.0	19.5
5						.5	2.0	10.0	16.5	21.5	24.0	20.5
6						.5	4.0	10.0	16.0	21.5	24.0	19.0
7						.5	3.5	9.5	14.0	22.5	22.0	19.0
8						.5	5.0	9.0	13.5	22.5	24.0	19.5
9						.5	6.5	9.0	16.0	22.5	22.0	19.5
10						.5	4.0	10.5	17.5	22.5	22.5	18.5
11						.5	6.5	11.0	17.0	22.0	22.0	18.0
12						.5	7.0	12.0	17.5	22.0	20.5	18.0
13						1.0	5.0	12.5	21.5	20.5	19.0	17.5
14						1.0	---	13.5	21.0	20.0	17.5	16.5
15						1.0	---	15.5	20.0	20.0	18.5	19.0
16						1.0	10.5	15.5	18.0	19.0	19.5	19.0
17						.5	12.0	15.0	18.5	21.5	19.5	19.0
18						.5	9.5	14.5	19.0	22.5	21.5	18.5
19						.5	9.5	14.5	19.5	24.0	21.5	18.0
20						1.0	9.5	15.0	18.5	23.5	22.0	18.0
21						.5	9.5	15.0	19.0	22.0	21.0	18.0
22						1.0	8.5	16.0	19.0	22.5	21.0	18.5
23						.5	7.5	16.0	19.5	22.5	19.5	18.5
24						1.0	6.5	17.0	20.0	21.0	19.5	18.5
25						2.0	8.5	17.5	20.5	20.5	20.5	17.0
26						2.5	9.0	19.5	21.5	20.5	21.0	19.0
27						2.0	10.5	18.0	22.0	21.5	18.5	17.0
28						2.0	11.0	16.5	23.0	21.5	21.0	17.0
29						3.5	11.5	14.5	23.5	21.5	19.0	17.0
30						3.5	12.0	15.0	24.0	21.5	21.0	17.5
31						3.5	---	14.0	---	21.5	19.0	---
MEAN						1.0	7.5	13.5	18.5	21.5	21.0	18.5

WTR YR 1979 MEAN 14.5 MAX 24.0 MIN .5

06115200 MISSOURI RIVER NEAR LANDUSKY, MT--Continued

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	455	10000	1570	34700			---	---	188	5990	168	4760
2	358	7640	860	20300			---	---	197	5960	161	4520
3	1230	28000	826	19100			---	---	196	5820	155	4230
4	1340	28400	1180	27500			---	---	192	5810	169	4700
5	221	4690	1120	24700			---	---	193	5840	341	9390
6	337	7680	565	12700			---	---	194	5920	855	28900
7	743	16700	460	10200			---	---	187	5910	1540	70700
8	1340	29700	550	12300			---	---	152	5050	1880	112000
9	2000	43300	580	13000			---	---	113	3600	1910	155000
10	1960	43400	430	9530			---	---	106	3350	1900	144000
11	977	21500	178	4000			---	---	110	3420	1960	136000
12	480	9950	77	1700			---	---	115	3570	2240	151000
13	305	5900	82	1770			---	---	113	3450	2800	181000
14	264	5150	73	1580			---	---	106	3010	2830	176000
15	278	5430	61	1380			---	---	104	2780	2380	148000
16	230	4850	56	1290			---	---	104	2720	2210	128000
17	242	5060	62	1470			---	---	106	2780	2210	122000
18	272	5740	80	1880			---	---	109	2800	2280	120000
19	267	5600	100	2320			---	---	129	3480	2350	117000
20	359	7710	115	2550			---	---	162	4590	2370	112000
21	490	10800	137	2810			---	---	179	5030	2350	108000
22	569	13600	167	3160			---	---	155	4310	2720	121000
23	541	12700	172	3720			---	---	95	2620	5830	252000
24	503	11700	150	3510			---	---	99	2730	4820	195000
25	444	10700	79	2560			---	---	124	3310	3360	132000
26	427	9590	76	2460			---	---	148	3880	2030	77800
27	477	10100	97	3010			---	---	159	4250	1240	43900
28	528	11800	106	3150			139	4390	167	4870	1120	38100
29	550	12500	105	2780			142	4490	---	---	1120	36300
30	703	14500	---	---			150	4580	---	---	1270	42900
31	1510	34100	---	---			164	5000	---	---	1170	40800
TOTAL	---	448490	---	231130			---	18460	---	116850	---	3019000

06115200 MISSOURI RIVER NEAR LANDUSKY, MT--Continued

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	966	32900	1150	46300	933	46900	621	17400	245	4930	1810	33200
2	819	27200	1270	50700	730	34300	531	14300	295	6150	1150	20400
3	721	23000	1200	48300	660	29000	525	13600	459	8960	329	5210
4	1060	34900	1130	45500	555	24400	1570	43200	912	17400	215	3480
5	628	19300	2040	78200	512	21300	6810	195000	1270	24100	288	4710
6	515	15900	2760	112000	643	25500	2000	54500	1300	24900	257	4440
7	1510	52600	1840	78500	632	27000	710	18900	1160	22200	218	3570
8	2580	94700	1180	53800	658	28800	555	14600	808	15200	178	2980
9	2200	83200	1030	44200	522	23100	692	17600	533	10100	160	2660
10	1930	75600	777	29600	477	20300	641	16600	525	10100	167	2710
11	1940	80100	766	28300	254	10400	282	6600	496	8850	209	3600
12	1720	69200	653	31300	284	11100	281	6100	320	6180	261	3980
13	1330	51700	959	35000	709	27000	242	5290	199	3630	339	5350
14	1210	45400	576	20800	707	25800	202	4260	264	4860	337	5790
15	1190	44000	473	17100	495	17100	225	4610	446	8240	261	4170
16	1200	44100	751	28200	445	14900	354	7340	808	14700	195	3100
17	1310	48500	967	36800	443	13500	385	8210	700	13400	159	2450
18	1470	56000	856	34000	404	11300	377	8540	321	6140	177	2990
19	2260	91500	976	42700	366	10700	354	6500	172	3200	208	3370
20	1780	73100	1010	48000	5500	206000	318	5870	231	4250	250	3260
21	1270	52800	907	43300	11300	491000	273	5380	261	4760	238	3330
22	1150	45600	957	47500	3570	164000	235	4600	1950	40300	163	2520
23	1030	40600	835	43100	23300	1010000	208	4020	1030	25000	215	2950
24	1340	61500	940	48500	19200	793000	177	3510	349	6830	244	3310
25	2500	113000	771	39100	7240	283000	187	3620	262	5110	237	3900
26	2030	85000	768	39600	1160	40700	310	5890	393	7690	135	2180
27	1300	53000	962	51700	677	22100	287	5540	385	7430	108	1340
28	1020	41000	1560	90100	566	17600	259	5100	291	5360	133	1690
29	986	39400	1240	75000	568	16900	274	5510	363	7500	206	2590
30	1100	44300	1160	67700	570	18500	283	5620	689	13200	226	3010
31	---	---	1150	64300	---	---	259	4860	1130	20700	---	---
TOTAL	---	1639100	---	1519200	---	3485200	---	522730	---	361370	---	146240

TOTAL LOAD FOR YEAR: 11509770 TONS.

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPERATURE (DEG C) (00010)	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70340)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)	SED. SUSP. FALL DIAM. % FINER THAN .125 MM (70343)	SED. SUSP. FALL DIAM. % FINER THAN .250 MM (70344)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
APR											
06...	1100	3.0	11400	469	14400	--	--	--	--	--	41
25...	1215	7.0	16200	3690	161000	52	74	91	97	100	--
MAY											
23...	1200	18.0	18300	666	32900	--	--	--	--	--	70
JUL											
02...	1330	21.0	9640	466	12100	--	--	--	--	--	69
AUG											
22...	1200	20.5	7240	3210	62700	69	93	97	98	100	--
SEP											
26...	1400	18.0	5760	122	1900	--	--	--	--	--	41

06115200 MISSOURI RIVER NEAR LANDUSKY, MT--Continued

PARTICLE-SIZE DISTRIBUTION OF SURFACE BED MATERIAL, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	BED MAT. FALL DIAM. % FINER THAN .062 MM (80158)	BED MAT. FALL DIAM. % FINER THAN .125 MM (80159)	BED MAT. FALL DIAM. % FINER THAN .250 MM (80160)	BED MAT. FALL DIAM. % FINER THAN .500 MM (80161)	BED MAT. FALL DIAM. % FINER THAN 1.00 MM (80162)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)
OCT 25...	1300	3	9	97	100	--	--
APR 06...	1100	2	3	52	96	99	100
MAY 23...	1200	28	75	100	--	--	--
JUL 02...	1330	3	6	76	98	100	--
25...	1030	14	27	87	100	--	--
AUG 22...	1200	1	1	50	94	100	--
SEP 26...	1400	10	17	85	100	--	--

DATE	TIME	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	WEATHER (WMO CODE NUMBER) (00041)
AUG 21...	1400	510	8.7	--	21.5	8.3	101	702	13
21...	1500	--	--	--	--	8.2	99	--	--
21...	1600	510	8.3	16.0	21.0	8.2	98	704	3
21...	1700	--	--	--	--	8.1	97	--	--
21...	1800	--	--	--	--	8.0	97	--	--
21...	1900	521	8.5	17.0	21.0	8.1	97	703	10
21...	2000	--	--	--	--	8.2	99	--	--
21...	2100	--	--	--	--	8.0	96	--	--
21...	2200	536	8.4	15.5	21.0	8.0	96	704	1
21...	2300	--	--	--	--	7.9	95	--	--
21...	2400	--	--	--	--	7.8	93	--	--
22...	0100	--	--	--	--	7.8	93	--	--
22...	0200	--	--	--	--	7.7	92	--	--
22...	0300	621	8.4	12.5	20.5	7.5	89	704	1
22...	0400	--	--	--	--	7.4	88	--	--
22...	0500	--	--	--	--	7.4	88	--	--
22...	0600	606	8.2	13.0	20.0	7.4	87	706	3
22...	0700	--	--	--	--	7.3	85	--	--
22...	0800	657	8.2	13.5	20.0	7.0	82	706	63
22...	0900	--	--	--	--	7.2	84	--	--
22...	1000	720	8.4	16.5	20.0	7.2	84	706	1
22...	1100	--	--	--	--	7.3	86	--	--
22...	1200	680	8.2	23.0	20.5	7.1	84	706	1
22...	1300	--	--	--	--	7.2	86	--	--
22...	1400	637	8.3	26.5	21.5	7.2	87	705	1

06115200 MISSOURI RIVER NEAR LANDUSKY, MT--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

PHYTOPLANKTON

DATE	JUL 2,79	JUL 25,79	AUG 22,79
TIME	1330	1030	1200
TOTAL CELLS/ML	10000	3700	1000
DIVERSITY: DIVISION	1.4	1.1	0.7
.CLASS	1.4	1.1	0.7
..ORDER	2.1	1.5	0.7
...FAMILY	2.8	2.7	0.9
....GENUS	3.2	3.3	0.9

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...CHARACIACEAE						
....SCHROEDERIA	410	4	150	4	--	-
...COELASTRACEAE						
....COELASTRUM	830	8	--	-	--	-
...HYDRODICTYACEAE						
....PEDIASTRUM	--	-	270	7	--	-
...OOCYSTACEAE						
....ANKISTRODESMUS	52	1	120	3	--	-
....OOCYSTIS	--	-	920#	25	--	-
...SCENEDESMACEAE						
....ACTINASTRUM	--	-	--	-	810#	80
....CRUCIGENIA	--	-	67	2	--	-
....SCENEDESMUS	620	6	870#	24	--	-
....TETRASTRUM	--	-	270	7	--	-
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CHLAMYDOMONAS	100	1	170	5	--	-
CHRYSOPHYTA						
.BACILLARIOPHYCEAE						
..CENTRALES						
...COSCINODISCACEAE						
....CYCLOTELLA	830	8	130	4	--	-
....MELOSIRA	310	3	--	-	--	-
....STEPHANODISCUS	--	-	180	5	--	-
..PENNALES						
...FRAGILARIACEAE						
....ASTERIONELLA	2300#	23	--	-	--	-
....FRAGILARIA	1300	13	34	1	--	-
....SYNEDRA	--	-	--	-	150	15
...NITZSCHIACEAE						
....NITZSCHIA	1000	10	230	6	50	5
CRYPTOPHYTA (CRYPTOMONADS)						
.CRYPTOPHYCEAE						
..CRYPTOMONADALES						
...CRYPTOCHRYSIDACEAE						
....CHROOMONAS	52	1	*	0	--	-
...CRYPTOMONADACEAE						
....CRYPTOMONAS	--	-	50	1	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..CHROOCOCCALES						
...CHROOCOCCACEAE						
....ANACYSTIS	570	6	150	4	--	-
..HORMOGONALES						
...OSCILLATORIACEAE						
....OSCILLATORIA	1600#	15	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)						
.EUGLENOPHYCEAE						
..EUGLENALES						
...EUGLENACEAE						
....TRACHELOMONAS	--	-	50	1	--	-

06115200 MISSOURI RIVER NEAR LANDUSKY, MT--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

PHYTOPLANKTON

DATE	APR 6,79	MAY 23,79
TIME	1100	1200
TOTAL CELLS/ML	3900	1400
DIVERSITY: DIVISION	0.2	0.8
.CLASS	0.2	0.8
..ORDER	0.7	1.6
...FAMILY	1.0	2.0
....GENUS	1.1	2.0

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)				
.CHLOROPHYCEAE				
..CHLOROCOCCALES				
...OOCYSTACEAE				
....ANKISTRODESMUS	--	-	51	4
...SCENEDESMACEAE				
....SCENEDESMUS	--	-	210	14
..VOLVOCALES				
...CHLAMYDOMONADACEAE				
....CHLAMYDOMONAS	38	1	--	-
...VOLVOCACEAE				
....PANDORINA	--	-	820*	57
CHRYSOPHYTA				
.BACILLARIOPHYCEAE				
..CENTRALES				
...COSCINODISCACEAE				
....CYCLOTELLA	3300*	85	100	7
..PENNALES				
...ACHNANTHACEAE				
....RHOICOSPHENIA	76	2	--	-
...CYMBELLACEAE				
....CYMBELLA	76	2	--	-
...DIATOMACEAE				
....DIATOMA	76	2	51	4
...GOMPHONEMATACEAE				
....GOMPHONEMA	38	1	--	-
...NAVICULACEAE				
....NAVICULA	110	3	100	7
....PINNULARIA	38	1	--	-
...NITZSCHIACEAE				
....NITZSCHIA	38	1	100	7
CYANOPHYTA (BLUE-GREEN ALGAE)				
.CYANOPHYCEAE				
..CHROOCOCCALES				
...CHROOCOCCACEAE				
....ANACYSTIS	76	2	--	-

PERIPHYTON

DATE	TIME	LENGTH OF EXPO- SURE (DAYS) (00022)	PERI- PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M (00573)	PERI- PHYTON BIOMASS ASH WEIGHT G/SQ M (00572)	CHLOR-A PERI- PHYTON CHROMO- GRAPHIC FLUOROM (MG/M2) (70957)	CHLOR-B PERI- PHYTON CHROMO- GRAPHIC FLUOROM (MG/M2) (70958)	BIOMASS CHLORO- PHYLL RATIO PERI- PHYTON (UNITS) (70950)
JUL							
02...	1330	40	.310	.240	.000	.000	.00
25...	1030	23	.710	.630	.000	.000	.00

06115500 NORTH FORK MUSSELSHELL RIVER NEAR DELPINE, MT

LOCATION.--Lat 46°36'36", long 110°34'30", in SW¼SE¼ sec.22, T.10 N., R.9 E., Meagher County, Hydrologic Unit 10040201, on right bank 0.5 mi (0.8 km) upstream from high-water line of Bair Reservoir at elevation 5,330 ft (1,630 m), 3 mi (5 km) downstream from Lion Creek, and 4 mi (6 km) northwest of Delpine.

DRAINAGE AREA.--31.4 mi² (81.3 km²).

PERIOD OF RECORD.--May 1940 to current year. Seasonal record since 1977 water year.

REVISED RECORDS.--WSP 1559: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 5,380 ft (1,640 m), by barometer.

REMARKS.--Records fair. Small diversions for irrigation of hay meadows above station. Several observations of water temperature were made during the year and are available in files of Helena district office.

AVERAGE DISCHARGE.--36 years (1940-76), 12.2 ft³/s (0.346 m³/s), 8,840 acre-ft/yr (10.9 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 423 ft³/s (12.0 m³/s) Apr. 1, 1950, gage height, 4.63 ft (1.411 m), from rating curve extended above 150 ft³/s (4.25 m³/s); minimum, 1.6 ft³/s (0.045 m³/s) Aug. 16, 1941, gage height, 0.32 ft (0.098 m).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 50 ft³/s (1.42 m³/s) and maximums (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Apr. 17	1930	105	2.97	2.02	0.616	July 8	2030	51	1.44	1.47	0.448
May 28	2000	59	1.67	1.58	0.482	Aug. 26	2000	*204	5.78	*2.68	0.817
June 19	0900	108	3.06	2.04	0.622						

Minimum daily discharge, 9.0 ft³/s (0.26 m³/s) Oct. 8-10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.2						15	36	50	39	18	12
2	9.2						15	34	47	37	18	12
3	9.2						15	34	42	36	18	11
4	9.2						12	36	41	39	18	11
5	9.2						15	39	41	35	18	11
6	9.2						20	44	40	33	17	11
7	9.2						22	39	42	31	14	11
8	9.0						20	38	41	35	14	11
9	9.0						22	36	41	34	14	11
10	9.0						22	34	39	28	14	13
11	10						22	34	34	25	14	11
12	13						20	33	32	25	14	11
13	13						20	33	31	24	14	11
14	13						21	34	31	23	15	11
15	13						23	35	31	23	14	11
16	13						28	37	31	22	13	10
17	13						59	38	34	22	13	10
18	13						49	39	51	22	13	10
19	13						36	40	80	21	13	10
20	13						30	42	60	21	13	10
21	13						29	43	60	20	13	10
22	13						29	44	58	20	13	10
23	13						29	45	55	20	13	9.7
24	12						27	47	52	19	13	9.7
25	12						28	47	50	19	13	9.7
26	12						29	47	47	20	18	9.7
27	12						30	51	47	20	16	9.7
28	12						33	56	44	19	13	9.7
29	12						34	56	41	20	12	9.5
30	12						34	53	41	18	12	9.5
31	12						---	52	---	18	12	---
TOTAL	353.4						788	1276	1334	788	447	316.2
MEAN	11.4						26.3	41.2	44.5	25.4	14.4	10.5
MAX	13						59	56	80	39	18	13
MIN	9.0						12	33	31	18	12	9.5
AC-FT	701						1560	2530	2650	1560	887	627

06118500 SOUTH FORK MUSSELSHELL RIVER ABOVE MARTINSDALE, MT

LOCATION.--Lat 46°27'21", long 110°22'54", in SW¼NW¼ sec.17, T.8 N., R.11 E., Meagher County, Hydrologic Unit 10040201, on left bank 2 mi (3 km) downstream from Cottonwood Creek, 3 mi (5 km) west of Martinsdale, and 6 mi (10 km) upstream from confluence with North Fork.

DRAINAGE AREA.--287 mi² (743 km²).

PERIOD OF RECORD.--October 1941 to September 30, 1979 (discontinued). Monthly discharge only November 1941 to May 1942, published in WSP 1309.

REVISED RECORDS.--WSP 1309: 1942(M), 1944(M). WSP 1729: Drainage area. WDR MT-75-1: 1948, 1964(M), 1967.

GAGE.--Water-stage recorder. Altitude of gage is 4,900 ft (1,490 m), by barometer. Prior to May 15, 1942, nonrecording gage at same site and datum.

REMARKS.--Records poor. Diversions for irrigation of about 6,600 acres (26.7 km²) of which 250 acres (1.01 km²) is below station. Several observations of water temperature were made during the year and are available in files of Helena district office.

AVERAGE DISCHARGE.--38 years, 91.3 ft³/s (2.586 m³/s), 66,150 acre-ft/yr (81.6 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,240 ft³/s (148 m³/s) June 19, 1975, gage height, 7.27 ft (2.216 m); minimum, 0.1 ft³/s (0.003 m³/s) Aug. 28 to Sept. 2, 1949, Mar. 29, 1950.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 480 ft³/s (13.6 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
May 28	1645	1,180	33.4	5.94	1.811	June 19	1745	*5,150	146	a*7.26	2.213
June 6	0845	682	19.3	4.95	1.509						

a--from outside highwater mark.

Minimum daily discharge, 6 ft³/s (0.17 m³/s) Dec. 29, result of freezeup.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	66	36	31	7.0	7.1	21	49	277	546	282	62	31
2	63	38	28	7.2	6.9	20	45	265	508	248	58	31
3	62	37	30	7.0	7.2	20	45	225	511	225	54	29
4	61	36	33	6.6	7.6	26	43	256	590	252	52	27
5	59	34	32	6.4	8.5	58	42	352	643	266	51	26
6	56	29	30	6.8	8.3	50	51	448	666	217	46	29
7	55	35	29	7.2	8.0	145	103	413	597	196	44	27
8	52	34	30	7.7	7.8	115	101	380	504	179	43	26
9	50	32	32	6.9	10	88	105	388	431	173	42	24
10	50	27	34	7.2	16	99	101	269	383	152	33	24
11	47	30	36	7.2	15	103	83	277	383	136	30	29
12	46	33	34	6.9	16	110	78	292	417	131	28	29
13	47	36	33	6.6	22	114	75	308	462	123	33	29
14	46	38	33	7.0	16	105	73	304	490	116	47	28
15	45	45	32	7.0	11	101	85	413	454	116	49	26
16	45	47	31	7.2	15	103	110	554	383	114	42	23
17	45	49	30	7.4	24	119	147	710	380	112	40	22
18	51	43	30	7.6	40	97	225	650	504	103	38	22
19	47	36	31	7.8	43	81	199	612	3250	97	47	22
20	44	35	32	8.1	41	65	144	568	2660	93	50	21
21	43	36	34	8.8	38	62	126	561	1550	87	45	22
22	43	36	34	8.3	35	61	131	654	1300	83	47	21
23	42	38	33	7.9	30	58	128	644	987	83	37	20
24	39	37	35	7.7	37	68	121	772	772	75	33	20
25	39	35	31	7.4	46	65	107	658	627	71	42	20
26	38	37	26	7.4	46	66	123	690	536	76	42	20
27	38	38	26	7.2	26	66	131	964	455	75	61	20
28	38	39	12	7.2	22	63	170	1100	404	73	45	20
29	38	39	6.0	7.0	---	62	199	1020	340	83	37	19
30	37	34	6.4	7.0	---	52	232	797	324	78	33	18
31	33	---	6.6	7.4	---	51	---	654	---	73	30	---
TOTAL	1465	1101	881.0	226.1	612.2	2314	3370	16895	22081	4184	1341	727
MEAN	47.3	36.7	28.4	7.29	21.9	74.6	112	545	736	135	43.3	24.2
MAX	66	49	36	8.8	46	145	232	1100	3250	282	62	31
MIN	33	27	6.0	6.4	6.9	20	42	225	324	71	28	18
AC-FT	2910	2180	1750	448	1210	4590	6680	33510	43800	8300	2660	1440

CAL YR 1978 TOTAL 58587.0 MEAN 161 MAX 1080 MIN 6.0 AC-FT 116200
WTR YR 1979 TOTAL 55197.3 MEAN 151 MAX 3250 MIN 6.0 AC-FT 109500

06120500 MUSSELSHELL RIVER AT HARLOWTON, MT

LOCATION.--Lat 46°25'48", long 109°50'24", in NE¼ sec.28, T.8 N., R.15 E., Wheatland County, Hydrologic Unit 10040201, on left bank 350 ft (107 m) downstream from bridge on U.S. Highway 191, 1 mi (2 km) southwest of Harlowton, and 6 mi (10 km) upstream from American Fork.

DRAINAGE AREA.--1,125 mi^2 (2,914 km^2).

PERIOD OF RECORD.--July 1907 to November 1929, March 1930 to December 1932, April to August 1933, February 1934 to current year. Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WSP 1309: 1912, 1915(M), 1918, 1925. WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 4,171.46 ft (1,271.461 m) National Geodetic Vertical Datum of 1929 (levels by Morrison and Maierle Inc.). Prior to Dec. 8, 1937, nonrecording gages at site 1.2 mi (1.9 km) downstream at different datums. Dec. 8, 1937, to Aug. 26, 1955, nonrecording gage at bridge 300 ft (90 m) upstream at different datums.

REMARKS.--Records good except those for winter period, which are poor. Some regulation by Bair and Martinsdale Reservoirs. Diversions for irrigation of about 37,000 acres (150 km^2) above station of which about 2,300 acres (9.31 km^2) is flood irrigated.

AVERAGE DISCHARGE.--69 years (1907-29, 1930-32, 1934-79), 165 ft^3/s (4.673 m^3/s) 119,500 acre-ft/yr (147 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge observed, 7,270 ft^3/s (206 m^3/s) June 20, 1975, gage height, 10.10 ft (3.051 m); no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,680 ft^3/s (13.3 m^3/s) June 20, gage height, 9.14 ft (2.786 m); minimum daily discharge, 35 ft^3/s (0.99 m^3/s) Nov. 21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	134	124	70	65	53	95	150	496	827	534	128	101
2	122	128	65	65	55	92	143	549	701	469	116	101
3	122	132	65	60	60	94	143	515	627	436	114	97
4	122	130	70	50	75	130	143	489	635	417	116	90
5	126	124	60	55	70	190	147	530	710	497	99	90
6	126	122	52	55	75	295	147	652	737	447	116	88
7	128	118	48	60	66	400	175	719	784	413	103	87
8	126	124	60	55	60	380	237	635	670	357	95	82
9	118	126	80	60	100	360	247	590	561	334	103	82
10	117	105	100	65	90	400	271	530	456	321	99	87
11	115	80	120	65	100	440	271	485	361	280	99	95
12	109	76	110	55	96	400	242	459	371	234	114	99
13	132	82	120	50	115	345	230	431	394	197	124	97
14	141	90	115	52	70	340	223	449	394	165	161	94
15	139	100	100	65	66	330	230	481	378	149	175	88
16	137	108	90	80	90	315	256	561	316	141	165	82
17	[illegible]	[illegible]	90	66	110	313	291	732	282	122	147	78
18	158	70	80	80	110	319	384	891	485	99	147	78
19	152	50	90	65	100	282	474	871	1440	73	170	78
20	143	40	104	95	95	237	428	803	3840	73	162	77
21	137	35	100	97	85	213	359	723	3730	67	168	78
22	134	89	95	90	70	205	337	670	2480	67	158	77
23	132	89	120	85	70	188	359	705	1890	63	138	77
24	130	85	115	86	110	180	362	751	1440	103	152	77
25	126	90	110	76	115	197	340	637	1190	112	167	75
26	130	96	110	74	120	183	322	907	1020	124	170	73
27	130	105	105	75	108	166	331	922	924	128	189	61
28	132	120	68	63	100	159	343	1060	759	192	168	60
29	134	115	40	56	---	163	394	1280	633	226	132	57
30	132	113	47	56	---	161	449	1250	564	149	114	56
31	126	---	50	64	---	150	---	996	---	149	104	---
TOTAL	4049	2958	2615	2115	2434	7722	8430	21969	29639	7156	4253	2462
MEAN	131	98.6	84.4	68.2	86.9	249	281	709	988	231	137	82.1
MAX	158	132	120	97	120	440	474	1280	3840	534	189	101
MIN	109	35	40	50	53	92	143	431	282	63	95	56
AC-FT	8030	5870	5190	4200	4830	15320	16720	43560	58790	14200	8440	4880

CAL YR 1978 TOTAL 109499 MEAN 300 MAX 1690 MIN 35 AC-FT 217200
WTR YR 1979 TOTAL 95806 MEAN 262 MAX 3840 MIN 35 AC-FT 190000

06123500 MUSSELSHELL RIVER NEAR RYEGATE, MT

LOCATION.--Lat 46°18'02", long 109°12'20", in center of S½ sec.3, T.6 N., R.20 E., Golden Valley County, Hydrologic Unit 10040201, on downstream side of county bridge 2 mi (3 km) upstream from Careless Creek and 2 mi (3 km) east of Ryegate.

DRAINAGE AREA.--1,979 mi² (5,126 km²).

PERIOD OF RECORD.--July 1946 to Sept. 30, 1979 (discontinued). Monthly discharge only for July 1946, published in WSP 1309.

REVISED RECORDS.--WSP 1729: Drainage area.

GAGE.--Nonrecording and crest-stage gage. Datum of gage is 3,585.26 ft (1,092.787 m) National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to June 23, 1967, water-stage recorder at site 1 mi (2 km) downstream at different datum.

REMARKS.--Records fair except those for winter period, which are poor. Some regulation by Bair and Martinsdale Reservoirs. Water is diverted on left bank in sec.8, T.7 N., R.17 E., for storage in Deadman's Basin Reservoir, and can be returned to the stream by canal at a point about 9 mi (14 km) above station or through Careless Creek 2 mi (3 km) below station. Diversions for irrigation of about 45,000 acres (182 km²) above station, of which 2,700 acres (10.9 km²) is flood irrigated. Several observations of water temperature were made during the year and are available in files of Helena district office.

AVERAGE DISCHARGE.--33 years, 188 ft³/s (5.324 m³/s), 136,200 acre-ft/yr (168 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,500 ft³/s (269 m³/s) June 16, 1967, gage height, 11.8 ft (3.60 m), from floodmark at site and datum then in use; maximum gage height, 12.3 ft (3.75 m) June 21, 1975, from floodmark; no flow Aug. 17-28, 1946.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,500 ft³/s (156 m³/s) June 21, gage height, 10.23 ft (3.118 m), from graph based on observer readings; maximum gage height observed, 10.78 ft (3.286 m) Mar. 8 (backwater from ice); minimum daily discharge, 61 ft³/s (1.73 m³/s) Sept. 28-30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	98	171	110	95	96	140	338	392	964	491	216	120
2	96	171	84	100	93	140	319	440	761	424	186	120
3	93	168	86	100	95	150	310	503	564	343	180	120
4	90	168	111	99	99	160	306	457	429	328	168	117
5	93	164	100	90	115	180	297	457	424	387	171	110
6	96	164	88	95	110	195	292	486	486	446	174	108
7	96	153	86	96	112	248	297	657	503	377	174	106
8	98	153	90	99	100	1500	315	781	648	343	174	103
9	96	138	100	96	115	1400	408	672	571	387	174	103
10	93	90	120	98	135	940	457	634	440	324	177	103
11	90	86	159	105	130	980	552	590	328	275	174	108
12	87	90	155	103	140	1050	486	515	254	279	174	108
13	87	94	151	95	160	975	440	527	258	288	174	110
14	90	104	160	92	130	900	419	451	258	275	171	120
15	90	115	151	100	105	838	419	446	271	258	168	115
16	96	120	140	104	110	924	419	474	408	254	168	110
17	96	115	131	116	130	791	429	571	408	246	168	101
18	98	110	129	119	150	812	367	584	446	216	168	101
19	114	93	120	116	150	796	419	891	721	202	130	90
20	114	80	130	124	139	731	571	891	1580	199	130	90
21	114	70	144	134	133	706	509	843	3700	174	130	88
22	107	90	141	131	123	597	451	610	4800	174	130	90
23	101	129	135	128	111	654	397	546	3530	174	130	90
24	149	130	160	130	120	577	440	540	2630	174	140	86
25	160	126	156	125	150	515	440	686	2070	174	160	78
26	160	129	149	116	160	463	419	696	1340	177	246	76
27	164	130	150	117	150	419	387	746	979	177	206	70
28	171	160	144	110	145	382	338	817	786	177	174	61
29	171	160	111	100	---	367	315	1000	691	190	146	61
30	171	154	80	96	---	362	338	1250	590	267	133	61
31	171	---	87	104	---	352	---	1250	---	223	125	---
TOTAL	3550	3825	3850	3333	3506	19224	11894	20363	31878	8423	5139	2924
MEAN	115	128	124	108	125	620	396	658	1063	272	166	97.5
MAX	171	171	160	134	160	1500	571	1250	4800	491	246	120
MIN	87	70	80	90	93	140	292	392	254	174	125	61
AC-FT	7040	7590	7650	6610	6950	38130	23590	40430	63230	16710	10190	5800

CAL YR 1978 TOTAL 115746 MEAN 325 MAX 3350 MIN 37 AC-FT 235500
WTR YR 1979 TOTAL 117437 MEAN 323 MAX 4800 MIN 61 AC-FT 233900

06126450 REHDER CREEK NEAR KLEIN, MT

LOCATION.--Lat 46°18'41", long 108°29'03", in NE¼SW¼SW¼ sec.33, T.7 N., R.26 E., Musselshell County, Hydrologic Unit 10040202, 100 ft (30.5 m) upstream from mouth and 6.5 mi (10.5 km) southeast of Klein.

DRAINAGE AREA.--23.1 mi^2 (59.8 km^2).

PERIOD OF RECORD.--Water years 1978 to current year.

REMARKS.--Scheduled samplings were not possible during periods of no flow.

06126470 HALFBREED CREEK NEAR KLEIN, MT

LOCATION.--Lat 46°23'14", long 108°32'29", in SW¼NE¼SW¼ sec.1, T.7 N., R.25 E., Musselshell County, Hydrologic Unit 10040201, on left bank, 800 ft (240 m) upstream from private road bridge, 3.2 mi (5.2 km) upstream from mouth, and 4.1 mi (6.6 km) south of Roundup.

DRAINAGE AREA.--53.2 mi² (137.8 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1977 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 3,330 ft (1,010 m), from topographic map.

REMARKS.--Water-discharge records fair except those for Nov. 16 to Dec. 12, Feb. 6 to Mar. 6, which are poor. No known regulation or diversions above station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 345 ft³/s (9.77 m³/s) May 23, 1978, gage height, 7.91 ft (2.411 m), from floodmark, from rating curve extended above 6.2 ft³/s (0.18 m³/s) on basis of slope-area measurement of peak flow; minimum daily, 0.35 ft³/s (0.010 m³/s) Dec. 8, 9, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 48.8 ft³/s (1.38 m³/s) July 25, gage height, 5.04 ft (1.536 m); minimum daily, 0.93 ft³/s (0.026 m³/s) Oct. 6, Jan. 9, 10, July 20, 24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.1	1.5	1.6	1.4	1.2	1.6	2.0	1.9	1.9	1.4	1.2	1.2
2	1.1	1.6	1.5	1.4	1.2	1.6	2.0	2.0	1.8	1.3	1.1	1.2
3	1.1	1.5	1.6	1.3	1.3	1.7	1.9	1.9	1.7	1.2	1.1	1.2
4	1.2	1.6	1.6	1.2	1.4	1.7	2.0	1.9	1.7	1.4	1.1	1.2
5	1.1	1.5	1.6	1.1	1.4	1.9	2.0	2.4	1.6	1.4	1.2	1.2
6	.93	1.6	1.6	1.2	1.5	2.4	2.4	3.0	1.6	1.3	1.0	1.2
7	1.0	1.6	1.6	1.1	1.7	2.9	2.7	2.9	1.6	1.2	1.0	1.2
8	1.0	1.6	1.6	1.1	1.6	2.9	2.4	2.3	1.6	1.2	1.1	1.2
9	1.3	1.9	1.4	.93	1.6	2.6	2.3	2.2	1.7	1.2	1.1	1.1
10	1.3	1.3	1.2	.93	2.0	2.6	2.3	2.3	1.6	1.3	1.0	1.1
11	1.3	1.3	1.5	1.0	1.8	3.5	2.3	2.2	1.6	1.2	1.1	1.2
12	1.2	1.4	1.6	1.0	1.6	4.5	2.3	2.3	1.4	1.2	1.1	1.2
13	1.8	1.6	1.6	1.1	1.6	4.3	2.2	2.2	1.3	1.2	1.2	1.2
14	1.2	1.6	1.6	1.2	1.6	3.5	2.2	2.0	1.2	1.1	1.3	1.2
15	1.3	1.6	1.7	1.4	1.5	3.3	2.2	2.0	1.3	1.1	1.3	1.2
16	1.5	1.6	1.7	1.4	1.5	3.3	2.2	2.0	1.3	1.1	1.2	1.2
17	1.2	1.6	1.7	1.3	1.5	2.9	2.2	1.9	1.3	1.1	1.2	1.2
18	1.2	1.5	1.7	1.4	1.5	2.7	2.2	1.9	1.4	1.1	1.2	1.2
19	1.4	1.6	1.6	1.3	1.7	2.3	2.2	1.8	1.8	1.0	1.1	1.2
20	1.3	1.5	1.6	1.3	1.9	2.3	2.3	1.8	1.7	.93	1.2	1.2
21	1.3	1.5	1.6	1.5	1.8	2.4	2.0	1.8	1.5	1.0	1.2	1.2
22	1.3	1.6	1.8	1.5	1.7	2.3	1.9	1.7	1.5	1.0	1.2	1.2
23	1.4	1.5	1.6	1.6	1.7	2.2	1.9	1.7	1.5	1.0	1.2	1.2
24	1.4	1.5	1.8	1.6	1.7	2.2	2.3	1.7	1.4	.93	1.2	1.3
25	1.4	1.4	1.8	1.5	1.6	2.2	2.3	1.7	1.2	4.5	1.4	1.3
26	1.4	1.4	1.8	1.5	1.7	2.0	2.0	1.7	1.3	1.2	1.4	1.3
27	1.3	1.4	1.9	1.5	1.7	2.0	2.0	1.7	1.4	1.2	1.3	1.3
28	1.5	1.6	1.8	1.4	1.6	2.0	2.0	1.7	1.4	1.2	1.2	1.3
29	1.6	1.6	1.7	1.4	---	2.2	1.8	1.9	1.2	1.3	1.2	1.3
30	5.0	1.6	1.6	1.3	---	2.0	1.8	1.9	1.3	1.2	1.2	1.3
31	1.6	---	1.5	1.3	---	2.0	---	1.9	---	1.2	1.2	---
TOTAL	43.73	46.1	50.5	40.16	44.6	78.0	64.3	62.3	44.8	39.66	36.5	36.5
MEAN	1.41	1.54	1.63	1.30	1.59	2.52	2.14	2.01	1.49	1.28	1.18	1.22
MAX	5.0	1.9	1.9	1.6	2.0	4.5	2.7	3.0	1.9	4.5	1.4	1.3
MIN	.93	1.3	1.2	.93	1.2	1.6	1.8	1.7	1.2	.93	1.0	1.1
AC-FT	87	91	100	80	88	155	128	124	89	79	72	72

CAL YR 1978 TOTAL 604.42 MEAN 1.66 MAX 88 MIN .45 AC-FT 1200
WTR YR 1979 TOTAL 587.15 MEAN 1.61 MAX 5.0 MIN .93 AC-FT 1160

06126470 HALFBREED CREEK NEAR KLEIN, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1978 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L) (00310)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)
OCT												
11...	1615	1.3	1	1690	8.1	15.0	13.0	11.1	119	--	620	110
NOV												
07...	1045	1.6	1	1680	8.0	11.0	5.5	11.2	100	--	620	120
DEC												
12...	1015	1.6	2	1660	8.1	2.0	1.0	10.4	81	--	620	130
JAN												
09...	1045	.91	83	1760	8.1	-10.0	1.0	9.6	75	--	640	130
FEB												
06...	1015	1.4	1	1660	8.1	--	1.0	10.3	82	--	620	160
MAR												
06...	1045	2.0	1	1540	8.2	9.5	2.0	10.4	84	--	540	100
APR												
04...	1045	2.0	70	1810	8.2	.0	3.5	11.4	97	--	650	160
MAY												
08...	1045	2.3	3	1730	8.3	6.0	7.0	11.3	106	2.3	610	120
JUN												
12...	1130	1.5	1	1650	8.2	21.0	17.0	8.3	97	--	610	130
JUL												
13...	1130	1.3	1	1570	8.1	23.0	20.0	6.5	80	--	580	120
AUG												
08...	1530	1.2	0	1550	8.5	30.5	22.5	10.7	139	--	560	100
SEP												
07...	1230	1.3	0	1490	8.5	28.0	17.5	8.9	105	--	590	140

DATE	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	BROMIDE DIS-SOLVED (MG/L AS BR) (71870)	IODIDE, DIS-SOLVED (MG/L AS I) (71865)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)
OCT												
11...	82	100	160	2.8	8.1	510	490	13	.2	.1	.01	9.8
NOV												
07...	83	100	170	3.0	8.0	500	440	22	.2	--	--	11
DEC												
12...	82	100	170	3.0	9.0	490	470	13	.2	--	--	15
JAN												
09...	90	100	180	3.1	9.0	510	510	15	.2	.1	.00	14
FEB												
06...	90	95	150	2.6	7.3	460	440	13	.2	--	--	15
MAR												
06...	77	85	160	3.0	9.1	440	440	11	.3	--	--	13
APR												
04...	79	110	190	3.2	7.3	490	550	12	.3	.1	.00	7.5
MAY												
08...	80	100	190	3.3	7.1	490	500	13	.2	.1	.00	5.2
JUN												
12...	81	100	180	3.2	7.2	480	490	11	.3	--	--	8.4
JUL												
13...	68	100	160	2.9	7.5	460	450	16	.2	.1	.00	11
AUG												
08...	71	94	150	2.7	8.4	460	450	16	.2	--	--	8.5
SEP												
07...	73	100	150	2.7	8.0	450	470	17	.3	.1	.00	6.9

06126470 HALFBREED CREEK NEAR KLEIN, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, KJEL-DAHL, TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C) (00689)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
OCT 11...	1170	1.59	4.11	.28	.02	.98	1.0	.02	6.6	.1	140	50
NOV 07...	1140	1.55	4.92	.67	.02	1.7	1.7	.03	--	--	90	60
DEC 12...	1150	1.56	4.97	.94	.07	.46	.53	.04	--	--	120	70
JAN 09...	1230	1.67	3.02	.97	.08	.43	.51	.04	4.5	.6	110	70
FEB 06...	1090	1.48	4.12	1.0	.16	.38	.54	.03	--	--	80	40
MAR 06...	1060	1.44	5.72	1.1	.25	.66	.91	.05	--	--	100	50
APR 04...	1250	1.70	6.75	.59	.02	.37	.39	.01	5.9	.2	140	60
MAY 08...	1190	1.62	7.39	.25	.03	.54	.57	.01	8.1	.1	110	90
JUN 12...	1170	1.59	4.74	.14	.04	.74	.78	.04	--	--	100	30
JUL 13...	1090	1.48	3.63	.05	.12	.55	.67	.02	15	.3	110	60
AUG 08...	1070	1.46	3.47	.01	.00	.47	.47	.05	--	--	80	30
SEP 07...	1100	1.50	3.86	.08	.19	.73	.92	.03	5.6	.2	110	20

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)
MAY 08...	1045	2	2	0	0	2	0	10	0	0	0	300
SEP 07...	1230	3	3	0	0	0	0	0	10	1	0	260

DATE	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
MAY 08...	10	0	90	90	.3	.0	2	0	1	2	30	20
SEP 07...	3	0	60	50	.0	.0	3	0	2	1	0	2

06126470 HALFBREED CREEK NEAR KLEIN, MT--Continued

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPER- ATURE (DEG C) (00010)	STREAM- FLOW, INSTAN- TANEOUS (CFS) (00061)	SEDI- MENT, SUS- PENDED (MG/L) (80154)	SEDI- MENT DIS- CHARGE, SUS- PENDED (T/DAY) (80155)
OCT 11...	1615	13.0	1.3	42	.15
NOV 07...	1045	5.5	1.6	26	.11
DEC 12...	1015	1.0	1.6	19	.08
JAN 09...	1045	1.0	.91	90	.22
FEB 06...	1015	1.0	1.4	18	.07
MAR 06...	1045	2.0	2.0	20	.11
APR 04...	1045	3.5	2.0	18	.10
MAY 08...	1045	7.0	2.3	16	.10
JUN 12...	1130	17.0	1.5	28	.11
JUL 13...	1130	20.0	1.3	34	.12
AUG 08...	1530	22.5	1.2	13	.04
SEP 07...	1230	17.5	1.3	34	.12

06126500 MUSSELSHELL RIVER NEAR ROUNDUP, MT

LOCATION(REVISED).--Lat 46°25'48", long 108°34'18", in NW¼SE¼SE¼ sec.22, T.8 N., R.25 E., Musselshell County, Hydrologic Unit 10040202, on left bank 20 ft (6 m) downstream from Halfbreed Creek, 0.1 mi (0.2 km) upstream from bridge on U.S. Highway 87, and 2.0 mi (3.2 km) southwest of Roundup.

DRAINAGE AREA.--4,023 mi² (10,420 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1946 to current year. Monthly discharge only for October 1947 to September 1949, published in WSP 1309.

REVISED RECORDS.--WSP 1086: 1946. WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 3,188.15 ft (971.748 m) National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to Sept. 26, 1949, nonrecording gage at present site and datum.

REMARKS.--Water-discharge records good except those for winter periods, which are poor. Some regulation by Bair, Martinsdale, and Deadman's Basin Reservoirs (see p.609-610, 612). Diversions for irrigation of about 59,600 acres (241 km²) above station, of which about 11,000 acres (44.5 km²) is flood irrigated.

AVERAGE DISCHARGE.--33 years, 228 ft³/s (6.457 m³/s), 165,200 acre-ft/yr (204 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,610 ft³/s (272 m³/s) June 18, 1967, gage height, 12.45 ft (3.795 m); maximum gage height, 13.73 ft (4.185 m) Mar. 9, 1979 (ice jam); minimum discharge, 0.60 ft³/s (0.017 m³/s) May 12, 1962, gage height, 0.63 ft (0.192 m); minimum gage height, 0.23 ft (0.070 m) July 31, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,480 ft³/s (127 m³/s) June 23, gage height, 9.13 ft (2.783 m); maximum gage height, 13.73 ft (4.185 m) Mar. 9 (ice jam); minimum daily discharge, 80 ft³/s (2.27 m³/s) Nov. 21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	154	240	150	103	105	160	696	577	1320	622	337	225
2	159	234	100	105	100	160	656	610	1000	546	323	214
3	159	232	105	107	101	170	622	669	789	507	309	210
4	156	231	125	100	110	180	602	700	635	457	296	197
5	151	227	115	98	130	200	561	665	522	413	293	195
6	156	225	105	100	130	220	565	683	522	406	288	191
7	156	223	100	103	120	280	577	823	534	522	275	187
8	156	228	105	105	105	400	602	996	581	450	270	183
9	153	241	120	107	115	800	705	985	627	618	266	179
10	154	160	140	107	140	1700	808	884	511	471	260	179
11	150	130	180	100	140	3200	952	808	413	390	265	179
12	144	135	175	100	145	3100	1040	728	312	339	263	183
13	156	120	160	98	160	2600	889	669	248	372	270	185
14	156	115	175	95	180	2800	774	627	232	378	306	181
15	156	125	170	100	150	2420	719	602	221	366	348	189
16	166	130	160	110	125	2070	696	598	218	351	317	187
17	178	125	150	120	140	1870	728	627	232	342	309	187
18	171	120	150	125	170	1770	770	737	478	301	298	173
19	175	105	140	120	170	1600	828	915	450	275	317	148
20	184	96	150	130	160	1350	963	1010	848	265	301	131
21	186	80	165	150	155	1150	941	1020	1920	275	296	126
22	178	120	160	140	145	1040	808	904	3280	290	273	124
23	174	140	155	135	130	979	732	665	4280	278	265	132
24	179	150	180	140	140	985	714	627	3480	288	246	121
25	200	145	175	135	170	1000	728	648	2750	263	285	120
26	218	150	170	130	180	963	714	737	2130	268	863	117
27	219	160	170	125	170	863	669	770	1510	288	549	108
28	223	170	160	115	165	794	644	868	1200	301	406	106
29	240	165	130	110	---	737	573	1040	952	339	317	102
30	244	160	90	105	---	709	561	1330	770	357	288	97
31	246	---	96	110	---	705	---	1510	---	393	255	---
TOTAL	5497	4882	4426	3528	3951	36975	21857	25032	32965	11731	9956	4856
MEAN	177	163	143	114	141	1193	729	807	1099	378	321	162
MAX	246	241	180	150	180	3200	1040	1510	4280	622	863	225
MIN	144	80	90	95	100	160	561	577	218	263	246	97
AC-FT	10900	9680	8780	7000	7840	73340	43350	49650	65390	23270	19750	9630

CAL YR 1978 TOTAL 174320 MEAN 478 MAX 6810 MIN 52 AC-FT 345800
WTR YR 1979 TOTAL 165656 MEAN 454 MAX 4280 MIN 80 AC-FT 328600

06126500 MUSSELSHELL RIVER NEAR ROUNDUP, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1978 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L) (00310)
OCT										
11...	1415	149	1	1680	8.2	13.0	12.5	9.8	103	--
NOV										
07...	1345	223	1	1410	8.2	11.0	6.0	11.4	103	--
DEC										
12...	1345	175	2	1690	8.1	5.0	.5	11.8	91	--
JAN										
09...	1445	107	2	1750	7.8	-10.0	.5	11.0	85	--
FEB										
06...	1430	123	1	1530	7.7	1.0	.0	11.3	87	--
MAR										
06...	1500	212	2	1420	8.1	6.0	.5	12.0	93	--
11...	1630	3390	0	796	8.0	17.0	1.5	12.0	96	5.1
APR										
04...	1545	629	70	1840	8.3	4.5	4.0	11.1	96	--
MAY										
09...	1400	1010	68	1340	8.3	9.5	8.0	9.9	94	--
JUN										
12...	1600	307	1	1220	8.4	28.0	23.0	7.9	104	--
21...	1415	1960	1	870	8.0	28.5	18.0	6.6	78	--
23...	1115	4470	0	678	7.9	23.5	17.0	7.5	86	5.9
AUG										
09...	1445	253	0	1270	8.3	24.0	23.0	8.3	107	--
SEP										
07...	1045	184	0	1380	8.5	23.0	19.0	8.3	100	--

DATE	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)
OCT									
11...	630	370	100	93	170	2.9	4.5	260	700
NOV									
07...	510	250	100	64	140	2.7	4.0	260	490
DEC									
12...	650	350	120	84	160	2.7	4.7	300	630
JAN									
09...	530	310	79	80	170	3.2	4.7	220	630
FEB									
06...	550	280	110	67	120	2.2	3.2	270	540
MAR									
06...	520	260	110	60	130	2.5	3.9	260	520
11...	230	120	51	26	83	2.4	6.6	110	280
APR									
04...	600	290	110	79	210	3.7	4.7	310	710
MAY									
09...	440	210	65	55	150	3.1	3.8	230	460
JUN									
12...	430	200	88	52	130	2.7	3.9	230	440
21...	300	130	64	34	80	2.0	6.2	170	270
23...	250	89	57	26	150	4.1	7.7	160	190
AUG									
09...	440	210	89	53	130	2.7	4.3	230	490
SEP									
07...	500	280	91	66	150	2.9	4.0	220	550

06126500 MUSSELSHELL RIVER NEAR ROUNDUP, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	BROMIDE DISSOLVED (MG/L AS BR) (71870)	IODIDE, DISSOLVED (MG/L AS I) (71865)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)
OCT									
11...	19	.3	.3	.00	5.5	1250	1.70	503	.05
NOV									
07...	21	.3	--	--	6.6	982	1.34	591	.05
DEC									
12...	19	.3	--	--	9.4	1210	1.65	572	.43
JAN									
09...	22	.3	--	--	9.9	1130	1.54	326	.44
FEB									
06...	16	.2	--	--	11	1030	1.40	342	.49
MAR									
06...	14	.4	--	--	9.5	1000	1.36	572	.45
11...	13	.2	.1	.00	5.9	532	.72	4870	.39
APR									
04...	18	.4	.2	.01	8.0	1330	1.81	2260	.30
MAY									
09...	16	.3	--	--	7.6	918	1.25	2500	.10
JUN									
12...	11	.3	--	--	7.0	871	1.18	722	.02
21...	8.6	.3	--	--	9.1	575	.78	3040	.19
23...	6.7	.3	.0	.00	11	448	.61	5410	.17
AUG									
09...	14	.3	--	--	.9	920	1.25	628	.03
SEP									
07...	16	.5	.1	.01	6.4	1020	1.39	507	.01

DATE	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITROGEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITROGEN, KJELDAHL, TOTAL (MG/L AS N) (00625)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CARBON, ORGANIC DISSOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUSPENDED TOTAL (MG/L AS C) (00689)	BORON, DISSOLVED (UG/L AS B) (01020)	IRON, DISSOLVED (UG/L AS FE) (01046)
OCT									
11...	.02	.22	.24	.01	--	4.0	.3	210	20
NOV									
07...	.01	.22	.23	.01	--	--	--	150	20
DEC									
12...	.02	.38	.40	.03	--	--	--	170	20
JAN									
09...	.03	.37	.40	.02	--	3.3	.3	180	30
FEB									
06...	.08	.48	.56	.02	--	--	--	130	10
MAR									
06...	.06	.37	.43	.01	--	--	--	130	20
11...	.15	.57	.72	.09	--	10	>4.0	80	30
APR									
04...	.03	.46	.49	.02	--	12	.5	200	10
MAY									
09...	.01	.95	.96	.20	--	--	--	140	20
JUN									
12...	.02	.78	.80	.03	--	--	--	0	10
21...	.08	2.7	2.8	.24	--	--	--	150	20
23...	.10	.83	.93	.48	--	16	8.3	90	170
AUG									
09...	.01	.41	.42	.06	--	--	--	170	10
SEP									
07...	.04	.00	.00	.05	5.4	--	.6	170	10

06126500 MUSSELSHELL RIVER NEAR ROUNDUP, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)
MAR 11...	1630	8	1	10	0	1	0	20	0	32	1	26000
JUN 23...	1115	10	2	0	0	0	2	30	10	72	8	45000
SEP 07...	1045	2	2	10	0	0	0	0	10	2	1	850

DATE	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
MAR 11...	44	0	770	40	.1	.0	27	0	1	1	100	20
JUN 23...	58	4	1200	30	.1	.0	45	5	1	1	190	30
SEP 07...	4	0	60	20	.0	.0	14	0	1	1	10	20

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPER-ATURE (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70340)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)	SED. SUSP. FALL DIAM. % FINER THAN .125 MM (70343)	SED. SUSP. FALL DIAM. % FINER THAN .250 MM (70344)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT 11...	1415	12.5	149	20	8.0	--	--	--	--	--	90
NOV 07...	1345	6.0	223	40	24	--	--	--	--	--	88
DEC 12...	1345	.5	175	98	46	--	--	--	--	--	91
JAN 09...	1445	.5	107	122	35	--	--	--	--	--	96
FEB 06...	1430	.0	123	61	20	--	--	--	--	--	89
MAR 06...	1500	.5	212	70	40	--	--	--	--	--	96
11...	1630	1.5	3390	1820	16700	--	--	--	--	--	64
APR 04...	1545	4.0	629	172	292	--	--	--	--	--	94
MAY 09...	1400	8.0	1010	381	1040	--	--	--	--	--	90
JUN 12...	1600	23.0	307	94	78	--	--	--	--	--	88
21...	1415	18.0	1960	3210	17000	33	52	86	97	100	--
23...	1115	17.0	4470	3090	37300	--	--	--	--	--	71
AUG 09...	1445	23.0	253	94	64	--	--	--	--	--	97
SEP 07...	1045	19.0	184	98	49	--	--	--	--	--	97

06127150 EAST PARROT CREEK NEAR ROUNDUP, MT

LOCATION.--Lat°24'12", long 108°20'47", in SW¼NE¼SE¼ sec.33, T.8 N., R.27 E., Musselshell County, Hydrologic Unit 10040202, 3.8 mi (6.1 km) upstream from mouth and 12.0 mi (19.3 km) east of Roundup.

DRAINAGE AREA.--20.2 mi^2 (52.3 km^2).

PERIOD OF RECORD.--Water years 1978 to current year.

REMARKS.--Scheduled samplings were not possible during periods of no flow.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L) (00310)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)
MAY 11...	1150	1.0	2	1550	8.3	11.5	11.0	11.9	121	.6	660	220
JUN 05...	1345	.67	1	1550	8.5	25.0	22.5	11.1	147	--	620	180
JUL 11...	1130	.39	0	1620	8.7	25.0	20.0	15.1	188	--	600	140
AUG 09...	1030	.33	0	1650	8.4	22.0	18.0	12.4	146	--	680	200
SEP 06...	1345	.51	0	1570	8.6	27.5	21.0	14.5	183	--	620	160

DATE	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	BROMIDE DIS-SOLVED (MG/L AS BR) (71870)	IODIDE, DIS-SOLVED (MG/L AS I) (71865)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)
MAY 11...	83	110	130	2.2	8.1	440	450	14	.2	.1	.00	6.3
JUN 05...	85	100	140	2.4	8.5	440	470	18	.2	--	--	6.2
JUL 11...	57	110	150	2.7	8.7	460	490	14	.2	.1	.00	6.5
AUG 09...	75	120	140	2.3	11	480	520	17	.2	--	--	9.2
SEP 06...	66	110	130	2.3	8.6	460	530	16	.2	.1	.00	11

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, KJEL-DAHL, TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C) (00689)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
MAY 11...	1070	1.46	2.89	.83	.01	.33	.34	.01	5.1	--	60	0
JUN 05...	1090	1.48	1.97	.50	.06	.53	.59	.05	--	--	120	10
JUL 11...	1110	1.51	1.17	.15	.01	.55	.56	.01	7.1	1.5	300	10
AUG 09...	1180	1.60	1.05	.17	.01	.30	.31	.04	--	--	140	<10
SEP 06...	1150	1.56	1.58	.26	.04	.11	.15	.01	5.7	.2	130	<10

06127150 EAST PARROT CREEK NEAR ROUNDUP, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)
MAY												
11...	1130	1	1	0	0	1	0	10	10	2	0	70
SEP												
06...	1345	1	2	0	<1	0	2	20	10	1	1	70

DATE	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
MAY												
11...	18	0	0	10	.5	.0	2	0	5	3	50	20
SEP												
06...	2	0	0	2	.0	.0	2	0	1	1	10	4

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPER-ATURE (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)
MAY					
11...	1130	11.0	1.0	6	.02
JUN					
05...	1345	22.5	.67	50	.09
JUL					
11...	1130	20.0	.39	17	.02
AUG					
09...	1030	18.0	.33	38	.03
SEP					
06...	1345	21.0	.51	36	.05

06127160 WEST PARROT CREEK NEAR ROUNDUP, MT

LOCATION.--Lat 46°25'57", long 108°25'07", in NW¼NE¼SW¼ sec.24, T.8 N., R.26 E., Musselshell County, Hydrologic Unit 10040202, 1.0 mi (0.6 km) upstream from mouth, and 4.5 mi (7.2 km) east of Roundup.

DRAINAGE AREA.--20.5 mi² (53.1 km²).

PERIOD OF RECORD.--Water years 1978 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L) (00310)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)
OCT 11...	1115	E.01	1	1380	7.9	12.0	10.5	8.9	89	--	350	0
NOV 07...	1450	E.01	1	1280	8.0	--	11.5	11.2	115	--	360	0
DEC 12...	1500	E.01	2	1280	8.2	.5	4.0	9.7	82	--	360	0
JAN 11...	0830	E.01	1	1270	7.9	-10.0	2.0	9.0	74	--	350	31
FEB 08...	0930	E.01	0	1330	8.1	-14.0	.5	10.6	82	--	340	0
MAR 08...	1115	.23	1	1300	8.2	9.0	9.0	11.6	115	--	350	0
APR 12...	1530	.18	1	1340	8.4	6.5	14.5	13.4	148	--	330	0
MAY 11...	0915	.20	3	1320	7.9	7.5	8.0	8.4	79	.8	360	0
JUN 14...	1400	.33	1	1330	8.3	18.0	20.5	12.8	160	--	480	35
JUL 11...	1400	E.15	1	1360	8.3	26.0	18.0	12.3	146	--	140	0
AUG 09...	0900	.57	0	1360	8.0	18.0	13.0	7.8	82	--	370	0
SEP 06...	1530	.41	0	1410	8.3	25.0	21.5	8.4	106	--	350	0

DATE	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	BROMIDE DIS-SOLVED (MG/L AS BR) (71870)	IODIDE, DIS-SOLVED (MG/L AS I) (71865)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)
OCT 11...	53	54	170	3.9	5.2	390	320	11	.3	.2	.00	6.7
NOV 07...	52	55	170	3.9	5.4	380	310	20	.3	--	--	7.9
DEC 12...	49	58	170	3.9	6.3	380	320	12	.3	--	--	7.9
JAN 11...	50	55	170	3.9	6.3	320	330	13	.3	.1	.00	8.2
FEB 08...	47	54	160	4.3	4.7	370	320	13	.2	--	--	7.5
MAR 08...	51	55	170	3.9	5.6	380	350	10	.3	.1	.02	6.2
APR 12...	43	55	180	4.3	4.4	370	340	11	.3	.1	.01	4.5
MAY 11...	52	55	170	3.9	4.6	370	330	12	.3	.1	.00	4.9
JUN 14...	54	65	160	3.6	5.1	450	340	11	.4	--	--	5.3
JUL 11...	55	--	180	--	5.1	390	350	13	.3	.1	.00	7.3
AUG 09...	54	57	180	4.1	6.9	410	380	14	.3	--	--	.4
SEP 06...	50	54	170	4.0	5.8	400	390	14	.4	.1	.00	7.7

06127160 WEST PARROT CREEK NEAR ROUNDUP, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, KJEL-DAHL, TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C) (00689)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
OCT 11...	855	1.16	.02	1.2	.01	1.8	1.8	.00	2.2	.3	90	10
NOV 07...	849	1.15	.02	1.4	.03	.33	.36	.00	--	--	60	50
DEC 12...	852	1.16	.02	1.5	.01	.24	.25	.02	--	--	120	20
JAN 11...	825	1.12	.02	1.6	.01	.33	.34	.01	1.6	.1	100	10
FEB 08...	849	1.15	.11	1.7	.04	.14	.18	.00	--	--	60	10
MAR 08...	877	1.19	.54	1.7	.01	.27	.28	.00	3.1	.7	70	20
APR 12...	861	1.17	.42	2.9	.01	.35	.36	.00	3.8	--	90	10
MAY 11...	851	1.16	.46	2.6	.01	.80	.81	.00	2.1	.4	60	0
JUN 14...	951	1.29	.05	2.1	.03	.50	.53	.01	--	--	90	10
JUL 11...	845	1.15	.34	1.9	.02	.45	.47	.03	2.1	.2	70	10
AUG 09...	939	1.28	1.45	1.8	.00	.32	.32	.04	--	--	80	<10
SEP 06...	933	1.27	1.05	1.9	.08	.02	.10	.02	2.9	.5	70	10

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)
MAY 11...	0915	1	0	0	0	0	0	10	0	0	0	20
SEP 06...	1530	2	2	10	<1	0	2	10	10	1	1	450

DATE	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
MAY 11...	21	0	0	10	.2	.0	1	0	2	2	20	20
SEP 06...	2	0	50	40	.0	.0	4	1	2	2	0	10

06127160 WEST PARROT CREEK NEAR ROUNDUP, MT--Continued

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPERATURE (DEG C) (00010)	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)
OCT					
11...	1115	10.5	E.01	2	.00
NOV					
07...	1450	11.5	E.01	4	.00
DEC					
12...	1500	4.0	E.01	12	.00
JAN					
11...	0830	2.0	E.01	6	.00
FEB					
08...	0930	.5	E.01	3	.00
MAR					
08...	1115	9.0	.23	4	.00
APR					
12...	1530	14.5	.18	15	.01
MAY					
11...	0915	8.0	.20	36	.02
JUN					
14...	1400	20.5	.33	6	.01
JUL					
11...	1400	18.0	E.15	40	.02
AUG					
09...	0900	13.0	.57	6	.01
SEP					
06...	1530	21.5	.41	31	.03

06127300 FATTIG CREEK NEAR DELPHIA, MT

LOCATION.--Lat 46°29'58", long 108°16'40", in NE¼NE¼NE¼ sec.24, T.7 N., R.27 E., Musselshell County, Hydrologic Unit 10040202, approximately 5 mi (8 km) upstream from Carters Coulee and 11.5 mi (18.5 km) south of Delphia.

DRAINAGE AREA.--22.9 mi² (59.3 km²).

PERIOD OF RECORD.--Water years 1978 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L) (00310)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)
OCT 11...	0945	.14	1	2230	8.2	12.5	8.0	9.6	92	--	790	280
NOV 07...	1545	E.20	1	2200	8.4	15.0	10.5	11.4	116	--	760	260
DEC 12...	1600	E.01	2	2120	8.1	.5	1.5	9.9	79	--	770	270
JAN 11...	1000	E.01	1	2170	8.0	-12.0	1.0	10.3	83	--	790	310
FEB 08...	1045	E.01	0	2160	8.0	-10.0	2.0	10.1	82	--	780	290
MAR 08...	1430	3.0	1	2060	8.2	5.5	6.5	10.1	93	1.4	800	330
APR 13...	1345	5.3	1	2360	8.4	8.0	9.0	11.7	116	1.3	1000	510
MAY 11...	1345	4.0	2	2330	8.3	10.5	12.0	11.1	116	--	990	590
JUN 05...	1530	1.4	1	2380	8.5	28.0	21.0	12.3	159	--	930	440
JUL 11...	0945	.50	0	2480	8.2	22.0	18.0	9.1	109	--	970	450
AUG 08...	1015	.32	1	2480	8.3	26.0	18.0	12.4	148	--	1000	480
SEP 06...	1100	.35	0	2550	8.4	21.0	15.0	12.5	140	--	1100	530

DATE	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	BROMIDE DIS-SOLVED (MG/L AS BR) (71870)	IODIDE, DIS-SOLVED (MG/L AS I) (71865)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)
OCT 11...	84	140	250	3.9	10	510	770	17	.2	.1	.00	7.8
NOV 07...	83	140	250	3.9	10	500	690	23	.3	--	--	9.2
DEC 12...	78	140	230	3.6	11	500	760	15	.3	--	--	11
JAN 11...	86	140	260	4.0	11	480	820	16	.2	.1	.00	11
FEB 08...	81	140	240	3.7	9.2	490	770	17	.2	--	--	10
MAR 08...	89	140	220	3.4	11	470	760	14	.3	.1	.00	9.4
APR 13...	110	180	220	3.0	8.9	510	890	16	.3	.1	.00	3.4
MAY 11...	98	180	220	3.1	9.2	400	990	19	.2	--	--	1.5
JUN 05...	93	170	250	3.6	9.9	490	900	20	.3	--	--	6.1
JUL 11...	93	160	280	3.9	11	520	920	18	.3	.1	.00	9.2
AUG 08...	94	190	270	3.7	12	540	1000	29	.3	--	--	10
SEP 06...	93	200	330	4.4	11	530	1100	22	.3	.1	.00	10

06127300 FATTIG CREEK NEAR DELPHIA, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, KJEL-DAHL, TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C) (00689)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
OCT 11...	1590	2.16	.60	.08	.01	.34	.35	.00	6.8	--	160	20
NOV 07...	1510	2.05	.82	.22	.01	.39	.40	.00	--	--	160	10
DEC 12...	1550	2.11	.04	.48	.05	.34	.39	.02	--	--	200	30
JAN 11...	1630	2.22	.04	.56	.06	.46	.52	.02	4.0	.2	160	20
FEB 08...	1560	2.12	.04	.65	.07	.24	.31	.00	--	--	120	0
MAR 08...	1530	2.08	12.4	.40	.02	.33	.35	.01	7.0	.6	130	30
APR 13...	1740	2.37	24.9	.27	.03	.42	.45	.00	6.0	.8	150	10
MAY 11...	1760	2.39	19.0	.13	.01	.41	.42	.00	--	--	150	10
JUN 05...	1740	2.37	6.58	.05	.04	.58	.62	.05	--	--	190	10
JUL 11...	1820	2.48	2.46	.05	.02	.65	.67	.01	10	.1	400	10
AUG 08...	1930	2.62	1.67	.03	.01	.49	.50	.02	--	--	160	10
SEP 06...	2090	2.84	1.98	.25	.03	.05	.08	.01	7.9	.3	190	0

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)
MAR 08...	1430	1	1	0	0	1	1	0	0	5	0	60
APR 13...	1345	1	1	0	0	0	0	20	10	9	4	110
SEP 06...	1100	1	1	0	0	0	0	30	20	2	2	60

DATE	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
MAR 08...	13	0	40	50	.0	.0	1	3	1	2	20	10
APR 13...	6	0	20	10	.1	.1	6	2	2	3	30	30
SEP 06...	3	0	10	0	.0	.0	5	0	1	1	10	10

06127300 FATTIG CREEK NEAR DELPHIA, MT--Continued

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPER-ATURE (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)
OCT					
11...	0945	8.0	.14	6	.00
NOV					
07...	1545	10.5	E.20	5	.00
DEC					
12...	1600	1.5	E.01	57	.00
JAN					
11...	1000	1.0	E.01	39	.00
FEB					
08...	1045	2.0	E.01	6	.00
MAR					
08...	1430	6.5	3.0	6	.05
APR					
13...	1345	9.0	5.3	8	.11
MAY					
11...	1345	12.0	4.0	14	.15
JUN					
05...	1530	21.0	1.4	14	.05
JUL					
11...	0945	18.0	.50	10	.01
AUG					
08...	1015	18.0	.32	18	.02
SEP					
06...	1100	15.0	.35	50	.05

06127500 MUSSELSHELL RIVER AT MUSSELSHELL, MT

LOCATION.--Lat 46°31'23", long 108°06'30", in S½SW¼ sec.20, T.9 N., R.29 E., Musselshell County, Hydrologic Unit 10040202, on left bank 0.9 mi (1.4 km) upstream from Hawk Creek, and 1 mi (2 km) west of Musselshell.

DRAINAGE AREA.--4,568 mi² (11,831 km²).

PERIOD OF RECORD.--August 1928 to September 1932 (no records December to February for the water years 1930-31), August 1945 to September 1979 (discontinued). Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,984.72 ft (909.743 m) National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to Oct. 8, 1949, nonrecording gage at site 1 mi (2 km) downstream at different datums.

REMARKS.--Records fair except those for winter period, which are poor. Some regulation by Bair, Martinsdale, and Deadman's Basin Reservoirs (see p. 609-610,612). Diversions for irrigation of about 63,300 acres (2[illegible]6 km²) above station, of which about 12,500 acres (50.6 km²) is flood irrigated. Several observations of water temperature were made during the year and are available in files of Helena district office.

AVERAGE DISCHARGE.--36 years (1928-29, 1931-32, 1945-79), 216 ft³/s (6.117 m³/s), 156,500 acre-ft/yr (193 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,850 ft³/s (279 m³/s) June 19, 1967, gage height, 11.57 ft (3.527 m); maximum gage height, 12.96 ft (3.950 m) Mar. 10, 1979 (ice jam); no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, undetermined, Mar. 10; maximum gage height, 12.96 ft (3.950 m) Mar. 10 (ice jam); minimum daily discharge, 90 ft³/s (2.55 m³/s) Nov. 21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	180	241	155	110	110	165	760	612	1450	637	297	223
2	178	235	110	115	105	165	740	622	1160	523	265	204
3	183	232	115	115	110	170	715	662	909	480	259	199
4	178	229	130	105	115	185	680	725	709	442	253	188
5	175	226	120	102	135	200	660	730	583	402	256	180
6	173	223	110	105	135	230	635	736	515	357	250	178
7	173	221	105	110	125	300	640	786	515	406	244	173
8	175	221	115	110	118	500	642	963	528	406	241	165
9	170	235	130	110	120	1000	698	1080	579	450	238	167
10	170	200	155	110	150	2000	822	982	546	418	238	162
11	167	165	180	105	145	3700	927	897	467	353	238	162
12	162	170	170	105	155	3500	1080	828	363	301	241	162
13	157	160	180	100	180	3100	1030	752	301	284	241	167
14	165	145	185	100	175	3400	886	698	250	314	247	167
15	162	150	175	105	155	2850	798	662	229	307	274	167
16	165	135	165	115	130	2270	758	642	220	304	284	173
17	173	125	155	125	145	2020	747	637	226	294	268	167
18	178	115	155	130	175	1880	798	677	256	274	262	170
19	173	105	145	125	175	1760	840	826	454	247	262	170
20	175	98	155	135	165	1560	921	1000	463	229	268	170
21	183	90	170	155	160	1370	1020	1040	1280	204	253	162
22	180	125	165	150	150	1220	921	1030	2400	204	244	146
23	175	145	160	145	135	1130	810	792	3370	215	223	136
24	173	155	185	150	145	1060	769	662	3800	204	207	128
25	175	145	180	150	175	1080	763	642	2710	220	209	123
26	204	150	175	135	185	1020	774	709	2250	215	436	133
27	221	170	180	125	175	960	747	752	1610	223	574	126
28	221	180	160	120	170	860	698	828	1240	232	394	126
29	229	170	135	115	---	810	657	951	982	256	294	123
30	241	165	95	110	---	790	612	1180	780	278	253	118
31	241	---	100	115	---	770	---	1450	---	301	241	---
TOTAL	5675	5106	4615	3707	4118	42025	23548	25555	31145	9980	8456	4835
MEAN	183	170	149	120	147	1356	785	824	1038	322	273	161
MAX	241	241	185	155	185	3700	1080	1450	3800	637	574	223
MIN	157	90	95	100	105	165	612	612	220	204	207	118
AC-FT	11260	10130	9150	7350	8170	83360	46710	50690	61780	19800	16770	9590

CAL YR 1978 TOTAL 174294 MEAN 478 MAX 6900 MIN 56 AC-FT 345700
WTR YR 1979 TOTAL 168765 MEAN 462 MAX 3800 MIN 90 AC-FT 334700

06130500 MUSSELSHELL RIVER AT MOSBY, MT

LOCATION.--Lat 46°59'41", long 107°53'18", in NW¼NW¼ sec.11, T.14 N., R.30 E., Petroleum County, Hydrologic Unit 10040205, near center of downstream side of bridge on State Highway 20, 0.3 mi (0.5 km) west of Mosby, 10.9 mi (17.5 km) downstream from Flatwillow Creek, and at mile 60.0 (96.5 km).

DRAINAGE AREA.--7,846 mi² (20,321 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May to November 1929, March 1930 to September 1932, February 1934 to current year. Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WSP 1559: 1935-36. WSP 1729: Drainage area.

GAGE.--Nonrecording gage. Datum of gage is 2,493.38 ft (759.982 m) National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Dec. 6, 1962, to Mar. 14, 1966, water-stage recorder at site 900 ft (274 m) downstream at different datum. Mar. 15, 1966, to Dec. 11, 1973, water-stage recorder and nonrecording gages at site 100 ft (30 m) downstream at same datum. See WSP 2116 for history of changes prior to 1962.

REMARKS.--Water-discharge records fair except those for winter period, which are poor. Some regulation by Bair, Martinsdale, and Deadmans Basin Reservoirs. Diversions for irrigation of about 103,000 acres (417 km²) above station.

AVERAGE DISCHARGE.--47 years (1930-32, 1934-79), 297 ft³/s (8.411 m³/s) 215,200 acre-ft/yr (265 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 18,000 ft³/s (510 m³/s) June 18, 1944, gage height, 14.43 ft (4.307 m); maximum gage height, 15.1 ft (4.60 m) Mar. 12, 1979, from floodmark (backwater from ice jam); no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, undetermined; maximum gage height, 15.1 ft (4.60 m) Mar. 12, from floodmark (backwater from ice jam); minimum daily discharge, 85 ft³/s (2.05 m³/s) July 24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	363	342	250	180	190	255	1820	1400	1700	877	242	290
2	345	345	200	170	185	250	1610	1330	1760	732	273	257
3	335	345	230	170	195	245	1480	1300	1430	591	224	242
4	335	345	260	165	210	265	1410	1310	1180	537	187	220
5	305	345	240	180	250	265	1390	1400	930	507	196	217
6	295	356	220	190	225	310	1310	1480	760	456	162	200
7	276	331	190	180	225	313	1930	2150	600	424	162	200
8	261	338	230	205	200	700	3160	1780	600	378	140	190
9	267	345	270	200	230	2000	2610	1850	600	440	154	159
10	279	290	320	195	225	3500	2660	1940	600	393	148	142
11	270	260	380	195	200	6000	2520	1840	630	424	148	140
12	270	270	370	190	205	13000	2270	1690	540	359	148	140
13	270	270	345	175	220	12000	2230	1560	490	310	148	148
14	264	240	360	160	215	11000	2120	1440	390	283	162	145
15	261	230	350	180	195	10000	1890	1490	330	245	180	159
16	273	250	320	190	200	9500	1800	1580	300	273	227	159
17	273	270	310	200	215	8500	1950	1570	[illegible]	251	261	156
18	267	250	320	205	230	8000	1900	1540	400	230	230	177
19	270	220	260	210	250	7390	1840	1540	320	213	230	162
20	280	190	230	225	245	5940	1860	1620	550	165	224	162
21	280	150	300	240	235	5110	2020	1770	590	140	239	154
22	292	175	325	220	230	4850	2170	1780	1270	102	242	126
23	292	200	340	210	210	4660	1960	1750	2440	91	232	116
24	295	250	350	220	225	4320	1780	1560	3310	85	213	96
25	295	230	320	220	255	5980	1700	1360	3970	107	210	93
26	295	240	270	200	275	3700	1700	1090	3280	121	227	98
27	292	260	280	195	270	2610	1690	1080	2430	109	236	91
28	311	290	240	190	265	2180	1690	1190	1690	109	498	112
29	314	285	210	195	---	1920	1540	1210	1330	129	424	119
30	321	280	160	180	---	1800	1510	1270	1090	187	345	116
31	338	---	165	190	---	1880	---	1460	---	217	290	---
TOTAL	9084	8192	8615	6025	6275	138463	57520	47330	35780	9485	7002	4786
MEAN	293	273	278	194	224	4467	1917	1527	1193	306	226	160
MAX	363	356	380	240	275	13000	3160	2150	3970	877	498	290
MIN	261	150	160	160	185	245	1310	1080	270	85	140	91
AC-FT	18020	16250	17090	11950	12450	274600	114100	93880	70970	18810	13890	9490

CAL YR 1978 TOTAL 417855 MEAN 1145 MAX 15600 MIN 62 AC-FT 828800
WTR YR 1979 TOTAL 338557 MEAN 928 MAX 13000 MIN 85 AC-FT 671500

06130500 MUSSELSHELL RIVER AT MOSBY, MT--Continued
(National Stream Quality Accounting Network)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1975 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1974 to current year.
WATER TEMPERATURES: October 1974 to current year.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 4,900 micromhos Aug. 14, 1977; minimum daily, 678 micromhos Mar. 23, 1978.
WATER TEMPERATURES: Maximum daily, 26.0°C Aug. 7, 9, 1978; minimum daily, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,600 micromhos Apr. 7; minimum daily, 792 micromhos Mar. 10.
WATER TEMPERATURES: Maximum daily, 24.5°C July 8, Aug. 5; minimum daily, 0.0°C on many days during November to March.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)
OCT										
12...	1045	265	1	2170	8.3	11.0	10.0	3.8	9.8	94
NOV										
08...	1030	324	1	1950	8.2	17.0	8.0	.20	10.8	100
DEC										
13...	1200	342	0	2250	8.0	.5	.5	22	11.2	84
JAN										
10...	1230	194	1	2340	7.7	-10.0	.0	9.2	10.1	75
FEB										
07...	1230	226	70	2130	7.7	4.0	.0	8.8	9.1	69
MAR										
07...	1300	313	1	2000	8.0	10.0	.0	28	9.5	72
12...	1500	11700	1	700	8.2	8.0	1.0	1200	8.9	69
APR										
05...	1330	1340	70	2260	8.3	-4.0	2.0	100	11.3	89
MAY										
10...	1300	1900	1	1725	8.4	16.0	10.0	64	9.7	94
JUN										
13...	1100	454	0	1610	8.4	31.0	23.0	28	7.5	97
26...	1430	2950	1	875	8.4	31.0	22.0	540	67.0	83
AUG										
23...	0900	233	0	1610	8.2	16.0	20.0	13	7.5	89
SEP										
25...	1345	100	0	1980	8.3	22.0	18.5	9.3	9.0	104

06130500 MUSSELSHELL RIVER AT MOSBY, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)
OCT										
12...	K6	K14	730	580	140	92	240	3.9	5.9	150
NOV										
08...	<1	K9	720	480	140	90	190	3.1	4.8	240
DEC										
13...	K20	670	880	570	170	110	230	3.4	6.2	310
JAN										
10...	K23	66	950	660	200	110	260	3.7	6.4	290
FEB										
07...	56	180	800	490	170	92	200	3.1	4.3	310
MAR										
07...	K8	1500	760	480	160	88	200	3.2	5.0	280
12...	K130	3400	190	120	40	22	74	2.3	6.4	69
APR										
05...	<1	K255	750	480	150	92	270	4.3	5.8	270
MAY										
10...	K85	K180	380	130	130	14	190	4.2	4.5	250
JUN										
13...	64	88	540	320	110	65	180	3.4	4.6	220
26...	550	730	330	140	78	34	74	1.8	6.3	190
AUG										
23...	51	52	470	260	83	64	180	3.6	5.2	210
SEP										
25...	K11	K16	580	370	100	79	220	4.0	5.2	210

DATE	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)
OCT									
12...	1000	20	.4	3.2	1780	1590	2.42	1270	.00
NOV									
08...	810	20	.4	4.6	1510	1400	2.05	1320	.02
DEC									
13...	1000	20	.5	7.7	1810	1730	2.46	1670	.37
JAN									
10...	1100	26	.4	9.2	2050	1890	2.79	1070	.44
FEB									
07...	900	18	.4	9.6	1730	1580	2.35	1060	.43
MAR									
07...	870	15	.5	8.7	1600	1520	2.18	1350	.47
12...	260	7.1	.2	4.3	515	456	.70	16300	.38
APR									
05...	1000	20	.4	7.1	1820	1710	2.48	6590	.31
MAY									
10...	670	16	.4	5.5	1310	1180	1.78	6720	.07
JUN									
13...	660	12	.4	6.1	1230	1170	1.67	1510	.02
26...	280	7.7	.4	10	609	605	.83	4850	.12
AUG									
23...	680	17	.4	5.5	1250	1160	1.70	786	.01
SEP									
25...	920	20	.4	5.9	1540	1470	2.09	416	.01

06130500 MUSSELSHELL RIVER AT MOSBY, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN,AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C) (00689)
OCT									
12...	.01	.43	.44	.41	.02	.00	--	5.1	.2
NOV									
08...	.02	.98	1.0	.54	.02	.00	4.7	--	--
DEC									
13...	.04	.42	.46	.46	.06	.02	4.1	--	--
JAN									
10...	.03	.40	.43	.41	.02	.01	--	3.8	.3
FEB									
07...	.11	.31	.42	.34	.02	.01	3.4	--	--
MAR									
07...	.09	.41	.50	.47	.01	.01	6.0	--	--
12...	.26	1.0	1.3	1.3	.83	.09	--	--	--
APR									
05...	.05	.74	.79	.39	.02	.02	9.1	--	--
MAY									
10...	.01	.90	.91	.21	.29	.01	24	--	--
JUN									
13...	.02	.80	.82	.53	.06	.01	7.5	--	--
26...	.08	1.6	1.7	.39	.48	.03	--	9.8	2.7
AUG									
23...	.00	.90	.90	.80	.05	.00	12	--	--
SEP									
25...	.03	.77	.80	.69	.04	.02	7.0	--	--

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)
OCT									
12...	1045	1	1	0	0	0	1	0	0
JAN									
10...	1230	1	1	100	200	1	1	10	0
MAR									
07...	1300	--	--	--	--	--	--	--	--
12...	1500	11	7	400	100	0	5	40	0
JUN									
26...	1430	7	2	600	0	0	0	30	0

DATE	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO) (01037)	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)
OCT									
12...	0	1	4	2	480	20	8	0	60
JAN									
10...	2	0	5	2	380	10	10	1	80
MAR									
07...	--	--	--	--	--	--	--	--	--
12...	21	0	63	11	53000	540	53	2	1100
JUN									
26...	21	0	64	2	52000	30	48	0	1200

DATE	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG) (01077)	SILVER, DIS-SOLVED (UG/L AS AG) (01075)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
OCT									
12...	20	.0	.0	2	3	0	0	20	20
JAN									
10...	60	.0	.0	3	3	0	0	20	20
MAR									
07...	--	--	--	--	--	--	--	--	20
12...	40	.2	.0	3	1	0	0	250	50
JUN									
26...	10	.1	.0	2	1	0	0	210	10

06130500 MUSSELSHELL RIVER AT MOSBY, MT--Continued

PESTICIDE ANALYSES, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	AROCLOR TOTAL 1254 PCB SERIES (UG/L) (39504)	PCP, TOTAL (UG/L) (39516)	ALDRIN, TOTAL (UG/L) (39330)	CHLOR-DANE, TOTAL (UG/L) (39350)	DDD, TOTAL (UG/L) (39360)	DDE, TOTAL (UG/L) (39365)	DDT, TOTAL (UG/L) (39370)	DI-AZINON, TOTAL (UG/L) (39570)	DI-ELDRIN TOTAL (UG/L) (39380)	ENDRIN, TOTAL (UG/L) (39390)
NOV 08...	1030	--	ND	ND	ND	ND	ND	ND	ND	ND	ND
FEB 07...	1230	--	ND	ND	ND	ND	ND	ND	ND	ND	ND
MAY 10...	1500	--	ND	ND	ND	ND	ND	ND	ND	ND	ND
AUG 23...	0900	.0	--	ND	ND	ND	ND	ND	ND	ND	ND

DATE	ETHION, TOTAL (UG/L) (39398)	HEPTA-CHLOR, TOTAL (UG/L) (39410)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L) (39420)	LINDANE TOTAL (UG/L) (39340)	MALA-THION, TOTAL (UG/L) (39530)	METH-OXY-CHLOR, TOTAL (UG/L) (39480)	METHYL PARA-THION, TOTAL (UG/L) (39600)	METHYL TRI-THION, TOTAL (UG/L) (39790)	PARA-THION, TOTAL (UG/L) (39540)	TOX-APHENE, TOTAL (UG/L) (39400)	TOTAL TRI-THION (UG/L) (39786)
NOV 08...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FEB 07...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MAY 10...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AUG 23...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979 ONCE-DAILY

1	2080	1920	2200	---	2080	2060	2000	1740	1210	1140	1950	1900
2	2070	1850	---	---	2110	2060	2090	1730	1140	1220	1930	1860
3	2100	1830	2180	---	2130	2030	2150	1730	1080	1320	1870	1870
4	2110	1940	2130	---	---	2010	2260	1600	1250	1420	1790	1950
5	2140	1960	2120	---	2120	1980	2280	1560	1340	1480	1770	2050
6	2170	1960	2120	---	2100	2000	2250	1640	1450	1550	1800	2010
7	2190	1960	2140	---	2110	1990	2600	2000	1570	1570	1810	1980
8	2220	1920	2170	---	2090	1980	1940	1830	1610	1580	1820	1950
9	2240	1920	2230	---	2100	1370	1940	1770	1640	1560	1880	1960
10	2220	1880	2260	---	2090	792	1940	1520	1580	1550	1870	1970
11	2240	1950	2240	---	2070	825	1910	1570	1480	1530	1870	2000
12	2190	2130	2230	---	2070	871	2010	1530	1470	1490	1860	2040
13	2200	2100	2270	---	2110	801	1960	1500	1540	1570	1850	2030
14	2170	2220	2300	---	---	818	1980	1500	1710	1650	1850	2020
15	2160	2270	---	---	---	903	2000	1490	1860	1730	1810	2000
16	2160	2310	2320	---	---	989	1990	1570	1960	1800	1750	1950
17	2160	2180	2270	---	2090	999	2010	1580	2100	1850	1720	1940
18	2170	2200	2290	---	2080	1020	1960	1570	1650	1840	1640	1930
19	2170	2190	---	---	2070	1170	1990	1540	2050	1840	1600	1930
20	2160	2230	---	---	2070	1240	1960	1440	2460	1870	1600	1880
21	2150	2250	---	---	2060	1350	1860	1350	1950	1930	1610	1860
22	2130	2300	---	---	---	1440	1780	1240	1550	2020	1680	1890
23	2130	2380	2240	---	---	1440	1750	1180	1110	2080	1680	1910
24	2110	2390	2180	2270	2040	1480	1800	1210	884	2140	1680	1950
25	2100	2350	---	2260	2020	1400	1940	1300	849	2180	1680	1970
26	2100	2260	---	2260	2010	1340	1880	1360	860	2410	1760	2020
27	2100	2220	---	2220	1990	1720	1850	1310	881	2280	1730	2050
28	2070	2220	---	2190	2010	1930	1860	1630	939	2200	1660	2060
29	2030	---	---	2170	---	2060	1840	1420	1010	2210	1570	2200
30	2000	2200	---	2150	---	2160	1860	1270	1080	2130	1490	2190
31	2020	---	---	2130	---	2160	---	1230	---	2050	1660	---
MEAN	2140	2120	2220	2210	2070	1500	1990	1510	1440	1780	1750	1980

WTR YR 1979 MEAN 1850 MAX 2600 MIN 792

06130500 MUSSELSHELL RIVER AT MOSBY, MT--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14.5	4.5	.0	.0	.0	.0	1.5	11.5	14.0	20.5	22.5	18.0
2	12.0	5.5	---	.0	.0	.0	2.0	10.0	14.5	20.0	22.0	23.0
3	10.0	8.0	.0	.0	.0	.0	2.5	10.5	16.5	20.0	23.5	21.5
4	10.0	6.5	.0	.0	.0	.0	3.5	10.0	17.5	23.0	22.5	20.5
5	9.5	6.0	.0	.0	.0	.0	1.5	12.0	19.0	22.5	24.5	19.5
6	8.5	4.5	.0	.0	.0	.0	1.0	12.5	17.0	23.0	24.0	19.0
7	10.0	5.5	.0	.0	.0	.0	5.5	8.5	15.5	23.5	24.0	23.5
8	11.0	8.5	.0	.0	.0	.0	4.5	9.0	13.5	24.5	23.0	21.5
9	10.0	5.5	.0	.0	.0	.0	6.0	9.0	15.5	23.0	22.0	22.5
10	11.5	.5	.0	.0	.0	.5	9.0	8.5	17.0	24.0	21.0	18.0
11	12.0	.5	.0	.0	.0	.5	6.0	10.0	19.5	23.0	21.0	18.0
12	10.0	.0	.0	.0	.0	.5	4.5	11.0	20.5	23.0	21.5	17.0
13	6.5	.0	.0	.0	.0	2.0	5.0	12.0	22.5	23.0	20.0	17.5
14	7.5	.5	.0	.0	.0	.5	6.0	12.5	21.5	19.5	17.0	13.0
15	8.0	.5	---	.0	.0	1.0	8.0	14.0	20.0	18.0	18.5	21.5
16	9.5	.0	.0	.0	.0	1.5	9.5	16.0	19.0	18.5	21.0	21.0
17	10.0	.5	.0	.0	.0	3.0	12.0	15.0	17.5	20.0	21.5	20.5
18	10.0	.0	.0	.0	.0	2.5	12.5	14.5	16.5	21.0	23.0	16.0
19	9.5	.0	---	.0	.0	3.0	10.0	14.5	16.0	21.5	23.0	20.0
20	10.0	.0	---	.0	.0	2.5	9.0	13.5	17.0	22.5	22.0	16.5
21	10.0	.0	---	.0	.0	3.0	10.0	15.5	18.5	22.5	21.5	20.0
22	9.5	.0	---	.0	.0	4.0	10.5	15.5	19.5	22.5	20.5	18.5
23	8.5	.0	.0	.0	.0	4.0	9.0	16.0	19.0	21.5	20.0	19.0
24	9.0	.0	.0	.0	.0	4.0	7.0	17.0	19.5	21.5	20.5	20.0
25	7.5	.0	---	.0	.0	4.0	7.5	17.5	20.5	20.5	19.5	15.0
26	6.5	.0	---	.0	.0	1.5	9.5	19.0	21.0	19.5	18.5	19.0
27	6.5	.0	---	.0	.0	2.0	9.0	20.0	21.0	20.0	24.0	19.5
28	7.0	.0	---	.0	.0	1.0	10.5	18.5	20.0	22.0	21.5	18.5
29	7.5	---	---	.0	---	3.0	10.0	15.5	22.0	22.0	20.5	18.0
30	8.0	.0	---	.0	---	3.0	10.5	13.5	23.0	20.5	23.0	16.5
31	5.0	---	---	.0	---	3.5	---	14.0	---	21.5	21.0	---
MEAN	9.0	2.0	.0	.0	.0	1.5	7.0	13.5	18.5	21.5	21.5	19.0

WTR YR 1979 MEAN 10.0 MAX 24.5 MIN .0

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPERATURE (DEG C) (00010)	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70340)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)	SED. SUSP. FALL DIAM. % FINER THAN .125 MM (70343)	SED. SUSP. FALL DIAM. % FINER THAN .250 MM (70344)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT											
12...	1045	10.0	265	59	42	--	--	--	--	--	93
NOV											
08...	1030	8.0	324	58	51	--	--	--	--	--	86
DEC											
13...	1200	.5	342	136	126	--	--	--	--	--	90
JAN											
10...	1230	.0	194	99	52	--	--	--	--	--	94
FEB											
07...	1230	.0	226	65	40	--	--	--	--	--	96
MAR											
07...	1300	.0	313	88	74	--	--	--	--	--	92
12...	1500	1.0	11700	3760	119000	35	49	75	93	100	--
APR											
05...	1330	2.0	1340	456	1650	--	--	--	--	--	84
MAY											
10...	1300	10.0	1900	596	3060	--	--	--	--	--	88
JUN											
13...	1100	23.0	454	134	164	--	--	--	--	--	93
26...	1430	22.0	2950	2650	21100	--	--	--	--	--	90
AUG											
23...	0900	20.0	233	78	49	--	--	--	--	--	96
SEP											
25...	1345	18.5	100	39	11	--	--	--	--	--	96

MUSSELSHELL RIVER BASIN

06130500 MUSSELSHELL RIVER AT MOSBY, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	WEATHER (WMO CODE NUMBER) (00041)
AUG									
22...	1900	1630	8.4	24.0	23.5	8.3	106	698	1
22...	2000	1610	8.3	21.0	23.0	8.0	101	698	1
22...	2100	1600	8.1	18.0	22.0	7.8	97	699	0
22...	2200	--	--	--	22.0	7.7	95	--	--
22...	2300	--	--	--	21.5	7.5	92	--	--
22...	2400	--	--	--	21.5	7.5	92	--	--
23...	0100	--	--	--	21.0	7.4	90	--	--
23...	0200	--	--	--	20.5	7.4	89	--	--
23...	0300	--	--	--	20.5	7.3	88	--	--
23...	0400	--	--	--	20.0	7.3	87	--	--
23...	0500	--	--	--	20.0	7.3	87	--	--
23...	0600	--	--	--	19.5	7.3	86	--	--
23...	0700	--	--	--	19.5	7.4	87	--	--
23...	0800	1610	8.2	16.0	20.0	7.5	89	698	0
23...	0900	--	--	--	20.0	7.7	92	--	--
23...	1000	1640	8.3	22.5	21.0	7.9	96	697	0
23...	1100	--	--	--	21.0	8.0	98	--	--
23...	1200	1650	8.5	25.0	22.5	8.2	103	695	0
23...	1300	--	--	--	22.5	8.4	106	--	--
23...	1400	--	--	--	23.5	8.5	109	--	--
23...	1500	1600	8.2	27.5	24.5	8.5	111	694	1
23...	1600	--	--	--	24.5	8.4	110	--	--
23...	1700	1600	8.4	29.0	25.0	8.2	108	693	1
23...	1800	--	--	--	24.5	8.1	106	--	--
23...	1900	1610	8.4	28.0	24.5	8.1	106	693	1

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

PERIPHYTON

DATE	TIME	LENGTH OF EXPO-SURE (DAYS) (00022)	CHLOR-A PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2) (70957)	CHLOR-B PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2) (70958)
SEP				
25...	1345	33	3.49	.000

06130500 MUSSELSHELL RIVER AT MOSBY, MT--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

PHYTOPLANKTON

DATE	NOV 8,78	APR 5,79	MAY 10,79
TIME	1030	1330	1300
TOTAL CELLS/ML	900	300	610
DIVERSITY: DIVISION	1.7	0.7	0.7
.CLASS	1.8	0.7	0.7
..ORDER	2.3	1.6	0.8
...FAMILY	2.9	1.7	2.0
....GENUS	3.5	1.7	2.0

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...OOCYSTACEAE						
....ANKISTRODESMUS	55	6	--	-	14	2
....CHLORELLA	41	5	--	-	--	-
....OOCYSTIS	14	2	120#	38	--	-
....SELENASTRUM	14	2	--	-	--	-
...SCENEDESMACEAE						
....ACTINASTRUM	55	6	--	-	--	-
....SCENEDESMUS	--	-	--	-	56	9
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CHLAMYDOMONAS	41	5	140#	48	14	2
CHRYSOPHYTA						
.BACILLARIOPHYCEAE						
..CENTRALES						
...COSCINODISCACEAE						
....CYCLOTELLA	41	5	--	-	--	-
....MELOSIRA	69	8	--	-	--	-
..PENNALES						
...DIATOMACEAE						
....DIATOMA	28	3	--	-	42	7
...FRAGILARIACEAE						
....SYNEDRA	69	8	--	-	--	-
...GOMPHONEMATACEAE						
....GOMPHONEMA	--	-	--	-	14	2
...NAVICULACEAE						
....NAVICULA	--	-	--	-	14	2
...NITZSCHIACEAE						
....NITZSCHIA	240#	26	14	5	360#	59
...SURIRELLACEAE						
....SURIRELLA	--	-	14	5	84	14
.CHRYSOPHYCEAE						
..CHRYSOMONADALES						
...OCHROMONADACEAE						
....OCHROMONAS	14	2	--	-	--	-
CRYPTOPHYTA (CRYPTOMONADS)						
.CRYPTOPHYCEAE						
..CRYPTOMONADALES						
...CRYPTOMONADACEAE						
....CRYPTOMONAS	14	2	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..CHROOCOCCALES						
...CHROOCOCCACEAE						
....AGMENELLUM	55	6	--	-	--	-
....ANACYSTIS	140#	15	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)						
.EUGLENOPHYCEAE						
..EUGLENALES						
...EUGLENACEAE						
....TRACHELOMONAS	14	2	14	5	--	-
PYRRHOPHYTA (FIRE ALGAE)						
.DINOPHYCEAE						
..PERIDINIALES						
...GLENODINIACEAE						
....GLENODINIUM	--	-	--	-	14	2

06130500 MUSSELSHELL RIVER AT MOSBY, MT--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

PHYTOPLANKTON

DATE	JUN 13,79	JUN 26,79	AUG 23,79
TIME	1100	1430	0900
TOTAL CELLS/ML	2400	520	2600
DIVERSITY: DIVISION	1.2	0.0	0.9
.CLASS	1.2	0.0	0.9
..ORDER	1.4	0.0	1.5
...FAMILY	2.1	0.0	2.7
....GENUS	2.8	0.0	3.0

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...CHLOROCOCCACEAE						
....CHLOROCOCCUM	--	-	--	-	200	8
...MICRACTINIACEAE						
....MICRACTINIUM	130	5	--	-	--	-
...OOCYSTACEAE						
....ANKISTRODESMUS	65	3	--	-	630#	24
....DICTYOSPHAERIUM	190	8	--	-	68	3
....OOCYSTIS	--	-	--	-	68	3
...SCENEDESMACEAE						
....ACTINASTRUM	210	9	--	-	--	-
....SCENEDESMUS	310	13	--	-	650#	25
....TETRASTRUM	460#	20	520#	100	--	-
..TETRASPORALES						
...PALMELLACEAE						
....SPHAEROCYSTIS	--	-	--	-	140	5
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CHLAMYDOMONAS	65	3	--	-	--	-
....PLATYMONAS	--	-	--	-	120	5
CHRYSOPHYTA						
.BACILLARIOPHYCEAE						
..CENTRALES						
...COSCINODISCACEAE						
....CYCLOTELLA	26	1	--	-	68	3
..PENNALES						
...ACHNANTHACEAE						
....ACHNANTHES	--	-	--	-	17	1
....COCCONEIS	--	-	--	-	17	1
...FRAGILARIACEAE						
....FRAGILARIA	--	-	--	-	51	2
....SYNEDRA	--	-	--	-	17	1
...NAVICULACEAE						
....NAVICULA	--	-	--	-	51	2
...NITZSCHIACEAE						
....CYLINDROTHECA	--	-	--	-	17	1
....NITZSCHIA	140	6	--	-	490#	19
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..HORMOGONALES						
...OSCILLATORIACEAE						
....OSCILLATORIA	770#	33	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)						
.EUGLENOPHYCEAE						
..EUGLENALES						
...EUGLENACEAE						
....EUTREPTIA	--	-	--	-	17	1

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

06130935 CROW ROCK CREEK NEAR COHAGEN, MT

LOCATION.--Lat 47°03'45", long 106°14'11", in SE¼SE¼ sec.11, T.15 N., R.23 E., Garfield County, Hydrologic Unit 10040106, on county road 2.6 mi (4.2 km) upstream from mouth, and 16.5 mi (26.6 km) north of Rock Springs.

DRAINAGE AREA.--213 mi² (550 km²).

PERIOD OF RECORD.--Water years 1978 to current year.

REMARKS.--Scheduled samplings were not possible during periods of no flow.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)
MAR										
22...	1330	97	397	7.8	5.5	.5	10.8	82	K11	1200
APR										
04...	1215	6.7	1160	8.1	-.5	1.0	10.6	85	K1	580
MAY										
31...	1745	.22	4650	8.6	10.0	17.0	11.0	124	870	85
JUN										
13...	0930	.01	4430	8.6	31.5	24.0	10.3	134	170	800

DATE	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)
MAR										
22...	110	20	27	9.6	42	1.8	9.0	110	0	88
APR										
04...	250	70	47	31	160	4.4	9.5	220	0	180
MAY										
31...	810	370	110	130	800	12	14	490	23	440
JUN										
13...	760	300	89	130	880	14	15	520	22	460

DATE	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)
MAR										
22...	2.8	110	2.7	.0	7.4	273	262	.37	71.5	.27
APR										
04...	2.6	430	4.0	.1	7.2	824	797	1.12	14.9	.11
MAY										
31...	2.2	2000	19	.2	.5	3380	3340	4.60	2.01	.01
JUN										
13...	2.3	2200	10	.2	1.0	3590	3600	4.88	.10	.01

DATE	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C) (00689)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
MAR									
22...	.53	.87	1.4	.22	.09	15	--	110	110
APR									
04...	.19	.64	.83	.02	.03	13	.9	210	110
MAY									
31...	.04	1.2	1.2	.06	.02	16	2.8	640	20
JUN									
13...	.03	1.3	1.3	.07	.02	19	2.1	1100	10

06130935 CROW ROCK CREEK NEAR COHAGEN, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	ALUMINUM, DISSOLVED (UG/L AS AL) (01106)	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DISSOLVED (UG/L AS AS) (01000)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA) (01007)	BARIUM, DISSOLVED (UG/L AS BA) (01005)	BERYLLIUM, TOTAL RECOVERABLE (UG/L AS BE) (01012)	BERYLLIUM, DISSOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD) (01027)	CADMIUM DISSOLVED (UG/L AS CD) (01025)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)
MAR 22...	1330	20	2	1	0	0	0	0	0	0	10
MAY 31...	1745	0	2	1	100	100	0	0	8	16	10

DATE	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COBALT, TOTAL RECOVERABLE (UG/L AS CO) (01037)	COBALT, DISSOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)	COPPER, DISSOLVED (UG/L AS CU) (01040)	LEAD, TOTAL RECOVERABLE (UG/L AS PB) (01051)	LEAD, DISSOLVED (UG/L AS PB) (01049)	LITHIUM TOTAL RECOVERABLE (UG/L AS LI) (01132)	LITHIUM DISSOLVED (UG/L AS LI) (01130)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)
MAR 22...	0	0	0	10	0	51	0	9	10	80	20
MAY 31...	10	0	3	4	7	29	29	40	40	100	40

DATE	MERCURY TOTAL RECOVERABLE (UG/L AS HG) (71900)	MERCURY DISSOLVED (UG/L AS HG) (71890)	MOLYBDENUM, TOTAL RECOVERABLE (UG/L AS MO) (01062)	MOLYBDENUM, DISSOLVED (UG/L AS MO) (01060)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI) (01067)	NICKEL, DISSOLVED (UG/L AS NI) (01065)	SELENIUM, TOTAL (UG/L AS SE) (01147)	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	VANADIUM, DISSOLVED (UG/L AS V) (01085)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)	ZINC, DISSOLVED (UG/L AS ZN) (01090)
MAR 22...	.0	.1	1	0	8	0	0	0	1.1	30	20
MAY 31...	.1	.0	1	0	0	2	0	0	.0	20	10

DATE	TIME	ARSENIC TOTAL IN BOTTOM MATERIAL (UG/G AS AS) (01003)	BARIUM, RECOV. FM BOTTOM MATERIAL (UG/G AS BA) (01008)	BERYLLIUM, RECOV. FM BOTTOM MATERIAL (UG/G) (01013)	CADMIUM RECOV. FM BOTTOM MATERIAL (UG/G AS CD) (01028)	CHROMIUM, RECOV. FM BOTTOM MATERIAL (UG/G) (01029)	COBALT, RECOV. FM BOTTOM MATERIAL (UG/G AS CO) (01038)	COPPER, RECOV. FM BOTTOM MATERIAL (UG/G AS CU) (01043)
MAR 22...	1330	67	100	0	0	4	0	12
MAY 31...	1745	23	240	2	1	16	10	22

DATE	LEAD, RECOV. FM BOTTOM MATERIAL (UG/G AS PB) (01052)	MANGANESE, RECOV. FM BOTTOM MATERIAL (UG/G) (01053)	MERCURY RECOV. FM BOTTOM MATERIAL (UG/G AS HG) (71921)	MOLYBDENUM, RECOV. FM BOTTOM MATERIAL (UG/G) (01063)	NICKEL, RECOV. FM BOTTOM MATERIAL (UG/G AS NI) (01068)	SELENIUM, TOTAL IN BOTTOM MATERIAL (UG/G) (01148)	ZINC, RECOV. FM BOTTOM MATERIAL (UG/G AS ZN) (01093)
MAR 22...	20	440	.40	2	0	0	16
MAY 31...	20	3100	.02	2	50	0	56

06130935 CROW ROCK CREEK NEAR COHAGEN, MT--Continued

RADIOCHEMICAL ANALYSES, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	GROSS ALPHA, DIS- SOLVED (UG/L AS U-NAT) (80030)	GROSS ALPHA, DIS- SOLVED (PCI/L AS U-NAT) (01515)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT) (80040)	GROSS ALPHA, SUSP. TOTAL (PCI/L AS U-NAT) (01516)	GROSS BETA, DIS- SOLVED (PCI/L AS CS-137) (03515)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137) (03516)	GROSS BETA, DIS- SOLVED (PCI/L AS SR/ YT-90) (80050)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/ YT-90) (80060)
MAR 22...	1330	<4.2	<2.9	4.9	3.3	13	4.8	12	4.6
MAY 31...	1745	<62	<42	1.4	1.0	38	1.4	35	4.6

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPER- ATURE (DEG C) (00010)	STREAM- FLOW, INSTAN- TANEOUS (CFS) (00061)	SEDI- MENT, SUS- PENDED (MG/L) (80154)	SEDI- MENT DIS- CHARGE, SUS- PENDED (T/DAY) (80155)
MAR 22...	1330	.5	97	131	34
APR 04...	1215	1.0	6.7	17	.31
MAY 31...	1745	17.0	.22	108	.06
JUN 13...	0930	24.0	.01	100	.00

PARTICLE-SIZE DISTRIBUTION OF SURFACE BED MATERIAL, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	BED MAT. FALL DIAM. % FINER THAN .062 MM (80158)	BED MAT. FALL DIAM. % FINER THAN .125 MM (80159)	BED MAT. FALL DIAM. % FINER THAN .250 MM (80160)	BED MAT. FALL DIAM. % FINER THAN .500 MM (80161)	BED MAT. FALL DIAM. % FINER THAN 1.00 MM (80162)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM (80173)	BED MAT. SIEVE DIAM. % FINER THAN 64.0 MM (80174)
MAR 22...	1330	18	29	38	42	46	53	67	80	87	100	--
MAY 31...	1745	3	4	7	10	17	25	39	55	61	84	100

06130935 CROW ROCK CREEK NEAR COHAGEN, MT--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

PHYTOPLANKTON

DATE	MAR 22,79	APR 4,79	MAY 31,79	JUN 13,79
TIME	1330	1215	1745	0930
TOTAL CELLS/ML	1500	86	2300	970
DIVERSITY: DIVISION	0.3	0.7	0.5	1.0
.CLASS	0.3	0.7	0.5	1.0
..ORDER	0.3	1.8	0.6	1.0
...FAMILY	1.1	1.8	0.6	1.5
....GENUS	1.1	1.8	0.6	2.2

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)								
.CHLOROPHYCEAE								
..CHLOROCOCCALES								
...OOCYSTACEAE								
....ANKISTRODESMUS	--	-	43#	50	26	1	--	-
....DICTYOSPHAERIUM	--	-	--	-	--	-	580#	60
....SELENASTRUM	--	-	--	-	--	-	52	5
....WESTELLA	--	-	--	-	--	-	52	5
...SCENEDESMACEAE								
....SCENEDESMUS	40	3	--	-	--	-	100	11
..VOLVOCALES								
...CHLAMYDOMONADACEAE								
....CHLAMYDOMONAS	--	-	14#	17	51	2	--	-
..ZYGNEMATALES								
...DESMIDIACEAE								
....CLOSTERIUM	--	-	14#	17	--	-	--	-
CHRYSOPHYTA								
.BACILLARIOPHYCEAE								
..CENTRALES								
...COSCINODISCACEAE								
....CYCLOTELLA	--	-	--	-	--	-	26	3
..PENNALES								
...NAVICULACEAE								
....GYROSIGMA	--	-	--	-	13	1	13	1
....NAVICULA	--	-	--	-	--	-	13	1
...NITZSCHIACEAE								
....NITZSCHIA	20	1	--	-	--	-	13	1
CYANOPHYTA (BLUE-GREEN ALGAE)								
.CYANOPHYCEAE								
..CHROOCOCCALES								
...CHROOCOCCACEAE								
....ANACYSTIS	--	-	--	-	2100#	92	--	-
..HORMOGONALES								
...NOSTOCACEAE								
....ANABAENA	400#	27	--	-	--	-	--	-
...OSCILLATORIACEAE								
....OSCILLATORIA	1000#	68	--	-	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)								
.EUGLENOPHYCEAE								
..EUGLENALES								
...EUGLENACEAE								
....EUGLENA	--	-	--	-	90	4	52	5
....TRACHELOMONAS	--	-	14#	17	13	1	26	3
PYRRHOPHYTA (FIRE ALGAE)								
.DINOPHYCEAE								
..PERIDINIALES								
...GLENODINIACEAE								
....GLENODINIUM	--	-	--	-	--	-	39	4

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

06131000 BIG DRY CREEK NEAR VAN NORMAN, MT

LOCATION.--Lat 47°20'58", long 106°21'26", in NW¼SE¼NW¼ sec.3, T.18 N., R.42 E., Garfield County, Hydrologic Unit 10040105, on left bank 900 ft (270 m) downstream from Little Dry Creek, 3.2 mi (5.1 km) northeast of Van Norman Post Office, and 26 mi (42 km) east of Jordan.

DRAINAGE AREA.--2,554 mi² (6,615 km²).

PERIOD OF RECORD.--October 1939 to July 1969, July 1970 to current year (discharge measurements only, October 1947 to March 1949). Prior to July 1970, published as "Dry Creek near Van Norman".

REVISED RECORDS.--WSP 1309: 1947(M). WSP 1559: 1944(M), 1947. WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 2,330 ft (710 m), by barometer. Prior to July 24, 1978, at site 400 ft (120 m) downstream at same datum.

REMARKS.--Records fair except those for winter period and period of no gage-height record, Aug. 1 to Sept. 11, which are poor. Few small diversions for irrigation of hay meadows above station. Several observations of water temperature were made during the year and are in files of Helena district office.

AVERAGE DISCHARGE.--36 years (1939-47, 1949-68, 1970-79), 60.3 ft³/s (1.708 m³/s), 43,690 acre-ft/yr (53.9 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 24,600 ft³/s (697 m³/s) Mar. 21, 1947, gage height, 13.39 ft (4.081 m); maximum gage height, 15.26 ft (4.651 m) Mar. 21, 1947 (ice jam); no flow at times each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 400 ft³/s (11.3 m³/s) and maximums (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 17	1600	undetermined		a*6.95	2.118	May 7	1100	641	18.2	2.73	0.832
Apr. 10	0500	2,470	70.0	4.03	1.228						

a--ice jam

Minimum daily discharge, 0.30 ft³/s (0.008 m³/s) Jan. 15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	70	16	10	1.8	.40	.60	593	200	48	16	7.2	3.9
2	63	15	9.0	2.0	.50	.50	494	191	45	15	6.6	3.9
3	60	15	9.4	1.8	.60	.60	439	176	44	16	6.4	3.8
4	56	15	10	1.6	.60	.80	393	165	44	15	5.9	3.8
5	53	14	9.5	1.8	1.0	1.2	371	156	40	15	5.5	3.8
6	51	14	8.5	1.6	.90	5.0	345	317	36	14	5.2	3.7
7	45	14	8.9	1.5	.80	24	553	499	36	14	4.9	3.7
8	41	14	8.4	1.8	.70	100	1150	379	36	18	4.7	3.7
9	38	13	9.0	1.6	.90	150	1880	272	33	15	4.3	3.6
10	36	12	10	1.5	.80	120	2340	222	32	13	4.3	3.6
11	32	12	11	1.2	.70	100	1960	188	31	13	4.2	3.6
12	32	12	12	1.0	.80	110	1690	148	30	13	4.2	3.5
13	30	19	10	.80	1.0	680	1270	122	27	12	4.1	3.8
14	28	18	11	.60	.90	1200	1090	108	25	12	4.0	3.8
15	27	16	10	.30	.60	2000	1010	96	22	12	3.9	3.8
16	25	18	9.4	.50	.40	3000	955	84	23	12	3.8	3.6
17	24	16	9.2	.60	.50	3600	1090	76	22	11	3.7	3.8
18	23	14	8.4	.80	.60	4000	1200	71	22	11	3.6	3.8
19	22	12	7.6	.70	.80	3000	1060	67	22	11	3.6	3.8
20	21	10	8.0	.80	.70	2500	893	67	21	10	3.5	3.8
21	19	11	8.4	1.0	.60	2300	744	62	21	9.9	3.5	3.8
22	18	11	7.8	.80	.60	2100	623	59	20	9.9	3.5	3.8
23	18	12	7.2	.70	.50	2200	526	57	19	9.6	3.5	3.8
24	16	13	7.4	.90	.40	2500	434	54	18	9.6	3.5	4.0
25	16	12	6.9	.80	.80	3600	366	48	18	9.4	3.6	4.0
26	16	11	6.0	.70	.80	1600	320	46	18	11	3.8	4.0
27	16	11	4.5	.60	.70	1390	280	51	19	9.2	4.2	4.1
28	16	11	3.3	.60	.70	965	246	53	21	8.7	4.2	4.3
29	15	12	2.5	.50	---	776	225	53	18	8.3	4.1	4.3
30	15	11	2.0	.60	---	666	216	51	16	7.8	4.1	4.3
31	16	---	1.6	.50	---	617	---	50	---	7.4	4.0	---
TOTAL	958	408	246.9	32.00	19.30	39306.70	24781	4192	827	368.8	135.6	115.2
MEAN	30.9	13.6	7.96	1.03	.69	1268	826	135	27.6	11.9	4.37	3.84
MAX	70	19	12	2.0	1.0	4000	2340	499	48	18	7.2	4.3
MIN	15	10	1.6	.30	.40	.50	216	46	16	7.4	3.5	3.5
AC-FT	1900	809	490	63	38	77960	49150	8310	1640	732	269	228

CAL YR 1978 TOTAL 89854.63 MEAN 246 MAX 16700 MIN .00 AC-FT 178200
WTR YR 1979 TOTAL 71390.56 MEAN 196 MAX 4000 MIN .30 AC-FT 141600

06131120 TIMBER CREEK NEAR VAN NORMAN, MT

LOCATION.--Lat 47°24'20", long 106°10'25", in E½ sec.13, T.19 N., R.43 E., McCone County, Hydrologic Unit 10040104, at bridge on State Highway 24, and 11.8 mi (19.0 km) northeast of Van Norman.

DRAINAGE AREA.--287 mi² (743 km²).

PERIOD OF RECORD.--Water years 1976 to September 1979 (discontinued).

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L) (00310)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)
OCT												
10...	1330	.55	0	3110	8.6	16.0	13.5	9.3	96	--	440	13
NOV												
13...	1230	.81	70	4170	8.5	-3.0	.0	12.2	88	--	480	0
DEC												
12...	1300	.40	70	6490	8.2	-4.0	.0	10.3	74	--	830	0
MAR												
21...	1130	47	0	1770	8.2	4.0	1.0	11.0	81	3.9	250	17
APR												
17...	1100	128	1	2080	8.3	17.0	9.0	10.4	96	--	420	210
MAY												
08...	1130	27	1	4220	8.5	5.0	8.5	9.6	87	--	750	310
JUN												
04...	1200	3.0	0	6500	8.5	23.0	21.5	--	--	--	940	170
JUL												
02...	1230	.59	0	5400	8.6	24.0	23.0	10.0	123	--	680	63
AUG												
20...	1200	.10	1	5880	8.9	25.5	23.5	7.6	94	--	780	0
SEP												
11...	1100	.11	1	7200	8.9	18.0	13.5	8.2	83	--	660	0

DATE	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	BROMIDE DIS-SOLVED (MG/L AS BR) (71870)	IODIDE, DIS-SOLVED (MG/L AS I) (71865)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)
OCT												
10...	57	73	550	11	9.0	430	1300	9.9	.3	.2	.00	3.4
NOV												
13...	60	79	770	15	7.3	650	1500	21	.5	--	--	3.0
DEC												
12...	70	160	1400	21	17	960	2700	3.0	.5	.2	.02	4.8
MAR												
21...	33	40	300	8.3	8.2	230	650	5.7	.2	.1	.00	6.7
APR												
17...	58	67	290	6.2	6.5	210	--	--	--	--	--	--
MAY												
08...	84	130	800	13	13	440	1900	9.1	.2	--	--	5.8
JUN												
04...	81	180	1400	20	12	770	3000	1.3	.5	.2	.00	2.4
JUL												
02...	59	130	1100	18	12	620	2400	50	.5	.2	.00	1.6
AUG												
20...	31	170	1500	23	12	810	3300	23	.6	--	--	.2
SEP												
11...	33	140	1600	27	13	860	3000	28	.7	.2	.00	.2

06131120 TIMBER CREEK NEAR VAN NORMAN, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO- GEN, KJEL- DAHL, TOTAL (MG/L AS N) (00625)	PHOS- PHORUS, TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS- PENDED TOTAL (MG/L AS C) (00689)	BORON, DIS- SOLVED (UG/L AS B) (01020)	IRON, DIS- SOLVED (UG/L AS FE) (01046)
OCT 10...	2260	3.07	3.36	.01	.02	.70	.72	.04	11	.4	960	30
NOV 13...	2830	3.85	6.19	.01	.01	.71	.72	.02	--	--	980	50
DEC 12...	4930	6.70	5.32	.05	.05	.90	.95	.04	18	.3	1800	60
MAR 21...	1180	1.60	150	.13	.08	.92	1.0	.04	15	--	490	180
APR 17...	--	--	--	.11	.06	.80	.86	.08	--	--	570	80
MAY 08...	3210	4.37	234	.01	.05	1.2	1.2	.06	--	--	1200	60
JUN 04...	5140	6.99	41.6	--	.08	1.3	1.4	.04	27	1.0	1900	20
JUL 02...	4130	5.62	6.58	.01	.01	.95	.96	.03	20	.9	1600	10
AUG 20...	5530	7.52	1.49	.01	.01	.76	.77	.04	--	--	2300	40
SEP 11...	5330	7.25	1.58	.03	.05	.74	.79	.05	22	.4	2200	30

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS- SOLVED (UG/L AS AS) (01000)	BERYL- LIUM, TOTAL RECOV- ERABLE (UG/L AS BE) (01012)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) (01027)	CADMIUM DIS- SOLVED (UG/L AS CD) (01025)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) (01034)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) (01042)	COPPER, DIS- SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE) (01045)
OCT 10...	1330	2	2	0	0	--	1	0	0	4	2	1000
MAR 21...	1130	2	2	0	0	0	0	20	0	16	0	7000
JUL 02...	1230	2	2	0	0	1	1	10	0	9	2	370

DATE	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) (01051)	LEAD, DIS- SOLVED (UG/L AS PB) (01049)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) (01055)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) (71900)	MERCURY DIS- SOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI) (01067)	NICKEL, DIS- SOLVED (UG/L AS NI) (01065)	SELE- NIUM, TOTAL (UG/L AS SE) (01147)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) (01092)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)
OCT 10...	--	16	60	10	.0	.0	4	0	0	0	20	20
MAR 21...	31	0	260	100	.3	.2	10	0	0	1	50	20
JUL 02...	16	1	50	20	.2	.1	9	4	0	0	30	20

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPER-ATURE (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT 10...	1330	13.5	.55	176	.26	98
NOV 13...	1230	.0	.81	108	.24	--
DEC 12...	1300	.0	.40	174	.19	--
MAR 21...	1130	1.0	47	328	42	98
APR 17...	1100	9.0	128	171	59	99
MAY 08...	1130	8.5	27	127	9.3	--
JUN 04...	1200	21.5	3.0	174	1.4	--
JUL 02...	1230	23.0	.59	98	.16	--
AUG 20...	1200	23.5	.10	90	.02	--
SEP 11...	1100	13.5	.11	69	.02	--

06131200 NELSON CREEK NEAR VAN NORMAN, MT

LOCATION.--Lat 47°32'08", long 106°09'11", in SW¼NW¼ sec.36, T.21 N., R.43 E., McCone County, Hydrologic Unit 10040104, on left bank at upstream side of bridge on State Highway 24, 1.5 mi (2.4 km) upstream from Fort Peck Lake, and 19 mi (30 km) northeast of Van Norman.

DRAINAGE AREA.--100 mi² (259 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1975 to current year.

REVISED RECORDS.--WDR MT-79-1; 1978(M).

GAGE.--Water-stage recorder. Altitude of gage is 2,300 ft (701 m), from topographic map.

REMARKS.--Water-discharge records fair except those for winter period, which are poor. Diversions for irrigation of about 163 acres (660,000 m²) above station of which about 158 acres (640,000 m²) is flood irrigated. Some storage in stock ponds upstream.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, revised, 1,750 ft³/s (49.6 m³/s) July 4, 1978, gage height, 9.30 ft (2.835 m); no flow occurs during most years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 497 ft³/s (14.1 m³/s) Apr. 10, gage height, 6.24 ft (1.902 m); maximum gage height, 6.29 ft (1.917 m), backwater from ice jam; no flow on many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.20	.10	.15	.00	.00	.10	4.5	3.5	1.6	.04	.15	.00
2	.15	.15	.10	.00	.00	.15	3.5	3.3	1.5	.03	.07	.00
3	.15	.15	.10	.00	.00	.15	2.8	3.1	1.2	.02	.05	.00
4	.15	.15	.10	.00	.00	.05	3.6	3.1	.90	.03	.03	.00
5	.10	.15	.15	.00	.00	.15	3.0	3.0	.66	.09	.01	.00
6	.10	.15	.15	.00	.00	.30	7.2	24	.58	.08	.02	.00
7	.10	.15	.15	.00	.00	.60	19	21	.50	.06	.02	.00
8	.10	.15	.15	.00	.00	.50	36	14	.50	.03	.01	.00
9	.05	.15	.10	.00	.00	.40	50	9.7	.47	.02	.00	.00
10	.10	.10	.15	.00	.00	.20	351	7.5	.47	.02	.00	.00
11	.20	.15	.15	.00	.00	1.8	132	6.3	.41	.03	.00	.00
12	.20	.15	.10	.00	.00	3.0	40	5.3	.38	.03	.00	.00
13	.15	.20	.10	.00	.00	3.8	29	4.5	.30	.03	.00	.00
14	.10	.15	.10	.00	.00	3.5	45	3.8	.22	.03	.00	.00
15	.10	.10	.10	.00	.00	3.4	44	3.3	.28	.02	.00	.00
16	.10	.15	.10	.00	.00	15	73	3.0	.22	.02	.00	.00
17	.10	.15	.10	.00	.00	17	137	2.5	.18	.03	.00	.00
18	.10	.15	.10	.00	.00	14	75	2.4	.13	.03	.00	.00
19	.10	.15	.10	.00	.00	10	34	2.4	.13	.03	.00	.00
20	.10	.10	.10	.00	.00	11	19	2.2	.13	.02	.00	.00
21	.10	.10	.10	.00	.00	12	16	1.9	.11	.01	.00	.00
22	.10	.10	.10	.00	.00	20	12	1.6	.11	.01	.00	.00
23	.10	.15	.10	.00	.00	34	9.7	1.5	.11	.01	.00	.00
24	.10	.15	.10	.00	.00	48	9.7	1.3	.10	.01	.00	.00
25	.10	.15	.10	.00	.00	53	10	1.2	.08	.02	.00	.00
26	.10	.10	.10	.00	.00	13	8.2	.90	.08	.03	.00	.00
27	.10	.10	.10	.00	.00	8.0	6.9	.90	.06	.03	.00	.00
28	.10	.15	.05	.00	.10	4.0	6.3	1.3	.09	.03	.00	.00
29	.10	.15	.05	.00	---	3.5	5.1	1.5	.10	4.5	.00	.00
30	.10	.15	.05	.00	---	6.0	4.3	1.5	.07	6.9	.00	.00
31	.10	---	.05	.00	---	7.5	---	1.5	---	.30	.00	---
TOTAL	3.55	4.15	3.25	.00	.10	294.10	1196.8	143.00	11.67	12.54	.36	.00
MEAN	.11	.14	.10	.000	.004	9.49	39.9	4.61	.39	.40	.012	.000
MAX	.20	.20	.15	.00	.10	53	351	24	1.6	6.9	.15	.00
MIN	.05	.10	.05	.00	.00	.05	2.8	.90	.06	.01	.00	.00
AC-FT	7.0	8.2	6.4	.00	.2	583	2370	284	23	25	.7	.00

CAL YR 1978 TOTAL 2771.82 MEAN 7.59 MAX 445 MIN .00 AC-FT 5500
WTR YR 1979 TOTAL 1669.52 MEAN 4.57 MAX 351 MIN .00 AC-FT 3310

06131200 NELSON CREEK NEAR VAN NORMAN, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1976 to September 1979 (discontinued).

REMARKS.--Scheduled samplings were not possible during periods of no flow.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L) (00310)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)
OCT												
10...	1130	.17	0	4620	8.3	18.0	12.0	8.8	87	--	840	430
NOV												
13...	1100	.18	70	6470	8.2	-3.0	.0	11.0	79	--	1100	490
DEC												
12...	1100	E.10	3	9200	8.1	-4.0	.0	7.6	54	--	1100	0
MAR												
25...	1315	52	3	447	8.3	-8.0	.5	10.6	78	2.9	81	15
APR												
17...	1300	125	0	1060	8.2	17.5	9.0	9.2	85	--	190	79
MAY												
03...	1130	3.2	3	4820	8.5	14.0	11.0	8.7	82	--	890	340
JUN												
04...	1030	.98	0	7380	8.4	20.0	18.5	--	--	--	1100	360
JUL												
02...	1105	.03	0	8200	8.4	21.0	20.0	7.4	86	--	1100	500

DATE	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	BROMIDE DIS-SOLVED (MG/L AS BR) (71870)	IODIDE, DIS-SOLVED (MG/L AS I) (71865)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)
OCT												
10...	120	130	880	13	11	410	2500	13	.2	.2	.03	5.6
NOV												
13...	140	180	1500	20	12	600	3600	20	.3	--	--	5.9
DEC												
12...	68	230	2000	26	20	1160	3900	37	.5	.2	.00	7.7
MAR												
25...	16	10	63	3.0	4.5	66	130	4.5	.1	.0	.01	4.8
APR												
17...	31	27	120	3.8	4.3	110	370	2.4	.2	--	--	5.2
MAY												
03...	77	170	920	13	9.6	550	2500	11	.3	--	--	2.0
JUN												
04...	83	220	1300	17	11	750	4000	18	.4	.2	.00	2.0
JUL												
02...	92	220	1800	25	15	640	4200	22	.3	.2	.00	.5

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, KJEL-DAHL, TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C) (00689)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
OCT												
10...	3710	5.05	1.70	.00	.04	.87	.91	.05	17	1.1	760	20
NOV												
13...	5820	7.92	2.83	.08	.06	.73	.79	.02	--	--	780	30
DEC												
12...	6960	9.47	1.88	.02	.03	.97	1.0	.03	21	--	1400	60
MAR												
25...	275	.37	38.3	.13	.03	.83	.86	.09	--	--	140	130
APR												
17...	627	.85	212	1.0	.12	1.3	1.4	.32	--	--	220	110
MAY												
03...	3820	5.20	33.0	.02	.05	.95	1.0	.04	--	--	1000	30
JUN												
04...	6090	8.28	16.1	.03	.02	1.2	1.2	.06	--	--	1400	20
JUL												
02...	6740	9.17	.55	.10	.00	1.1	1.1	.04	19	.9	1300	20

06131200 NELSON CREEK NEAR VAN NORMAN, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)
OCT 10...	1150	1	1	0	0	1	2	0	0	8	4	1200
MAR 25...	1315	2	1	0	0	0	0	10	0	19	2	8000
JUL 02...	1100	1	1	0	0	0	1	0	10	8	1	270

DATE	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
OCT 10...	9	6	290	200	.5	.4	7	2	0	1	40	20
MAR 25...	--	0	200	20	.0	.0	13	0	0	0	50	30
JUL 02...	16	0	80	40	.4	.2	8	4	0	0	50	20

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPER-ATURE (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT 10...	1150	12.0	.17	208	.10	99
DEC 12...	1100	.0	E.10	131	.04	--
MAR 25...	1315	.5	52	1460	205	93
APR 17...	1300	9.0	125	915	309	96
MAY 03...	1130	11.0	3.2	98	.85	--
JUN 04...	1030	18.5	.98	64	.17	--
JUL 02...	1100	20.0	.03	133	.01	--

06131500 FORT PECK LAKE AT FORT PECK, MT

LOCATION.--Lat 48°00'26", long 106°23'49", in sec.14, T.26 N., R.41 E., McCone County, Hydrologic Unit 10040104, in No. 4 emergency gate shaft of Fort Peck Dam on Missouri River at Fort Peck, 2 mi (3 km) downstream from Bear Creek, 9.5 mi (15.3 km) southwest of Nashua, 9.5 mi (15.3 km) upstream from Milk River, and at mile 1,771.6 (2,850.5 km).

DRAINAGE AREA.--57,500 mi^2 (148,900 km^2).

PERIOD OF RECORD.--October 1937 to current year. (Monthend contents only, except October 1938 to September 1940, when daily elevations were included). Monthend contents for October 1937 to August 1938, published only in WSP 1309. Daily elevations and contents for May to June 1964, published in WSP 1840-B. Prior to October 1970, published as "Fort Peck Reservoir". Daily elevations on file in Helena district office.

REVISED RECORDS.--WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is referenced to National Geodetic Vertical Datum of 1929. Prior to May 1, 1941, nonrecording gage at same site and datum.

REMARKS.--Reservoir is formed by earthfill dam completed in 1939; storage began in 1937. The following capacity figures are from capacity table effective July 1, 1973; see previous reports for superseded figures. Total capacity, 18,910,000 acre-ft (23.3 km^3) between elevation 2,095.00 ft (638.556 m), invert of lower ring gates, and 2,250.00 ft (685.800 m), top of 25 ft (7.6 m) gates. Elevation of spillway crest, 2,225.00 ft (678.180 m). Normal operating level, 17,930,000 acre-ft (22.1 km^3), elevation, 2,246.00 ft (684.458 m). Dead storage, 542,800 acre-ft (669 hm^3) below elevation 2,095.00 ft (638.556 m). Minimum operating level, 4,283,000 acre-ft (5.28 km^3), elevation, 2,160.00 ft (658.368 m), for on-site power generation. Figures given herein represent total contents; usable contents published in previous water-supply papers for October 1950 to September 1955. Water is used for navigation, recreation, flood control, and power generation. Elevations materially affected by wind.

COOPERATION.--Elevations and capacity furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 19,310,000 acre-ft (23.8 km^3) July 15-17, 1975 (elevation, 2,251.6 ft or 686.29 m); minimum since first filling, 5,061,000 acre-ft (6.24 km^3) Jan. 25, 26, 1956 (elevation, 2,167.67 ft or 660.611 m), by capacity table used Mar. 1, 1940, to Dec. 31, 1965.

EXTREMES FOR CURRENT YEAR.--Maximum contents at 2400, 18,420,000 acre-ft (22.7 km^3) Oct. 1, elevation, 2,248.0 ft (685.19 m); minimum, 16,700,000 acre-ft (20.6 km^3) Mar. 5-8, elevation, 2,240.7 ft (682.97 m).

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Elevation (feet)	Contents (acre-feet)	Change in Contents (acre-feet)
Sept. 30	2,248.0	18,420,000	---
Oct. 31	2,246.3	18,000,000	- 420,000
Nov. 30	2,244.6	17,600,000	- 400,000
Dec. 31	2,243.6	17,360,000	- 240,000
CAL YR 1978			+2,760,000
Jan. 31	2,242.3	17,060,000	- 300,000
Feb. 28	2,241.0	16,760,000	- 300,000
Mar. 31	2,246.2	17,980,000	+1,220,000
Apr. 30	2,247.0	18,170,000	+ 190,000
May 31	2,247.0	18,170,000	0
June 30	2,247.3	18,250,000	+ 80,000
July 31	2,245.6	17,840,000	- 410,000
Aug. 31	2,243.9	17,430,000	- 410,000
Sept. 30	2,242.7	17,150,000	- 280,000
WTR YR 1979			-1,270,000

06132000 MISSOURI RIVER BELOW FORT PECK DAM, MT

LOCATION.--Lat 48°02'39", long 106°21'21", in NW¼ sec.6, T.26 N., R.42 E., McCone County, Hydrologic Unit 10060001, on right bank 2 mi (3 km) upstream from Milk River, 6 mi (10 km) south of Nashua, 8 mi (13 km) downstream from Fort Peck Dam, and at mile 1,763.5 (2,837.5 km).

DRAINAGE AREA.--57,556 mi² (149,070 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1934 to current year.

REVISED RECORDS.--WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,018.00 ft (615.086 m), National Geodetic Vertical Datum of 1929 (Corps of Engineers bench mark). Prior to Apr. 14, 1938, at site 0.7 mi (1.1 km) upstream at different datum; Apr. 14, 1938, to Sept. 30, 1963, at present site at datum 2.00 ft (0.610 m) higher, all water-stage recorders. Since Oct. 1, 1969, published discharge is determined by flowmeters at Fort Peck Dam.

REMARKS.--Flow completely regulated by Fort Peck Lake (see p. 194). Diversions for irrigation of about 880,400 acres (3,560 km²) above station.

COOPERATION.--Records since Oct. 1, 1969, furnished by Corps of Engineers; 4 discharge measurements made and records reviewed by Geological Survey. Records for March 1934 to September 1969 collected and computed by Geological Survey.

AVERAGE DISCHARGE.--5 years (1934-39, prior to Fort Peck Lake reaching operational level), 6,347 ft³/s (179.7 m³/s), 4,598,000 acre-ft/yr (5.67 km³/yr); 36 years (1943-79, after operational level in Fort Peck Lake was reached), 9,934 ft³/s (281.3 m³/s), 7,197,000 acre-ft/yr (8.87 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 51,000 ft³/s (1,440 m³/s) including 32,000 ft³/s (906 m³/s) inflow from spillway 1 mi (2 km) downstream from station, Aug. 8, 1946; maximum gage height observed, 12.30 ft (3.749 m) Mar. 10, 1936 (ice jam), site and datum then in use; maximum daily reverse flow, 400 ft³/s (11.3 m³/s) Mar. 29, 1943 (backwater from Milk River).

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 28,900 ft³/s (818 m³/s) May 6, 7; minimum daily, 1,000 ft³/s (28.3 m³/s) Mar. 26-29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14500	14500	12600	14300	15100	15500	9300	25700	14000	13900	14500	9800
2	14600	14700	11500	11900	15100	15600	9900	27400	14000	13800	14500	10100
3	14600	14700	12400	11300	15200	15600	9000	28700	14000	13800	14500	10000
4	14600	14500	11200	11300	15200	15600	11800	27800	13900	14000	14600	10200
5	14400	14700	11500	11300	15200	15600	12500	27800	14000	13900	14700	10100
6	13200	14700	11500	11400	15200	15500	13800	28900	14000	13900	14700	10100
7	14500	14500	11300	11400	15200	15100	14600	28900	14000	13900	14700	8600
8	14600	14500	11500	11400	15200	15200	15000	27800	13900	14000	14600	8900
9	14500	14600	11600	11300	15200	15500	15000	25900	13900	13900	14700	8800
10	14300	14500	11600	11300	15100	15600	15800	23800	13900	13900	14600	8700
11	14300	13400	11600	11300	15300	15500	16700	20900	13900	13900	14600	8800
12	14400	14700	11100	11200	15200	15500	13700	23800	13900	13900	14000	8800
13	14500	11200	10100	11200	15300	15500	13600	17000	13800	13700	14800	8900
14	14500	10300	11400	11400	15200	14400	13500	15000	13900	13900	14800	8800
15	14500	10100	11100	12300	15300	11800	13500	14000	13900	13900	13600	8900
16	14400	13800	11600	13000	15200	9500	14100	13900	13300	13300	13800	8800
17	14200	14300	11700	13500	15300	9900	15200	13600	13900	14100	13700	9000
18	14700	13500	11600	14200	15200	9800	15500	14200	13900	14100	11700	8800
19	14700	14300	11500	14500	15200	9900	16900	14200	14000	14100	11900	9000
20	14600	14000	11700	14800	15200	9600	18800	14200	13800	13900	12100	9000
21	14600	13200	11600	14900	15200	9900	20900	14000	14000	14100	11800	8700
22	14600	10000	11700	14900	15100	10000	21800	13100	13900	14200	11600	8700
23	14600	7100	11500	14900	15500	9900	22800	14200	13900	14100	11600	8900
24	14600	10900	11500	13800	15400	9800	23600	10600	13900	14000	11900	8800
25	14400	14300	11500	13900	15300	4900	25100	14100	13800	14200	12000	8800
26	14200	14000	12700	14100	15300	1000	25000	14200	13900	14500	11500	9300
27	14100	14500	12400	14800	15400	1000	24900	14100	13900	14600	9600	9100
28	14000	13300	13000	15000	15400	1000	24900	14100	13800	14400	10000	9100
29	14100	13800	13100	14100	---	1000	24900	14000	13900	14000	10300	9000
30	13100	14500	14200	14100	---	3800	24900	13900	13800	14000	10000	9000
31	12500	---	14200	14800	---	8000	---	13900	---	14500	10200	---
TOTAL	443400	401100	367500	403600	426700	330500	517000	583700	417200	434400	402000	273500
MEAN	14300	13370	11850	13020	15240	10650	17230	18830	13910	14010	12970	9117
MAX	14700	14700	14200	15000	15500	15600	25100	28900	14000	14600	14800	10200
MIN	12500	7100	10100	11200	15100	1000	9000	10600	13800	13300	9600	8600
AC-FT	879500	795600	728900	800500	846400	667400	1025000	1158000	827500	861600	797400	542500

CAL YR 1978 TOTAL 4243916 MEAN 11630 MAX 15300 MIN 16 AC-FT 8418000
WTR YR 1979 TOTAL 5006600 MEAN 13720 MAX 28900 MIN 1000 AC-FT 9931000

06132000 MISSOURI RIVER BELOW FORT PECK DAM, MT--Continued
(National Stream Quality Accounting Network)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1964, 1975 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1974 to current year.
WATER TEMPERATURES: October 1974 to current year.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,080 micromhos Nov. 30, 1976; minimum daily, 520 micromhos June 29, 1978.
WATER TEMPERATURES: Maximum daily, 14.5°C on several days during August and September 1976; minimum daily, 0.0°C on several days during December 1977 to January 1978.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 918 micromhos March 14; minimum daily, 575 micromhos Oct. 2, 4.
WATER TEMPERATURES: Maximum daily, 13.5°C Oct. 3, 6, 7, 10; minimum daily, 0.5°C on many days during December to February.

REVISIONS.--The concentrations for total recoverable cadmium and total recoverable lead for July 26, 1978 (1100 hours) were found in error and have been deleted.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	COLOR (PLAT-INUM-COBALT UNITS) (00080)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)
OCT										
26...	1200	14200	0	730	8.3	12.5	12.0	13	2.5	10.9
NOV										
28...	1000	13300	70	690	8.3	1.0	.5	--	1.0	11.8
DEC										
19...	1315	11500	0	640	8.1	-10.0	.5	--	.50	12.6
JAN										
31...	1430	14800	0	748	8.1	-14.0	.5	--	.90	13.0
FEB										
26...	1215	15300	0	850	7.9	6.0	.5	--	1.5	12.2
MAR										
09...	1015	15500	0	790	8.2	-4.0	.5	--	3.0	12.8
APR										
30...	1130	24900	1	820	8.5	12.0	6.0	--	4.5	12.8
MAY										
23...	1100	14200	0	810	8.2	19.5	7.5	--	2.0	11.6
JUN										
14...	1245	13900	10	865	7.2	20.0	7.0	--	1.4	11.6
JUL										
03...	1100	13800	1	850	8.2	21.0	10.0	--	8.0	10.8
AUG										
02...	1000	14500	0	800	8.1	24.5	8.0	--	1.6	10.8
SEP										
21...	1100	8700	0	815	8.3	20.0	10.5	--	1.2	11.0

06132000 MISSOURI RIVER BELOW FORT PECK DAM, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)
OCT 26...	107	K1	K2	240	95	60	23	57	1.6	4.3
NOV 28...	90	92	K15	230	92	55	23	53	1.5	4.2
DEC 19...	95	K2	K4	240	91	57	24	58	1.6	4.3
JAN 31...	97	<1	<1	250	100	62	24	64	1.7	4.7
FEB 26...	92	<1	<1	260	110	63	25	72	1.9	3.9
MAR 09...	95	<1	<1	260	110	63	25	65	1.8	4.4
APR 30...	108	--	--	240	98	54	25	70	2.0	4.4
MAY 23...	103	K4	K5	270	130	62	27	71	1.9	4.5
JUN 14...	104	60	45	280	150	64	28	79	2.1	2.6
JUL 03...	104	K16	K14	270	130	66	25	73	1.9	4.9
AUG 02...	98	K10	<1	240	100	50	28	79	2.2	4.9
SEP 21...	107	80	K23	270	120	62	28	76	2.0	4.2

DATE	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)
OCT 26...	150	210	9.5	.6	8.0	457	463	.62	17500	.05
NOV 28...	140	200	8.3	.6	6.7	461	435	.63	16600	.02
DEC 19...	150	200	8.5	.6	6.5	463	449	.63	14400	.00
JAN 31...	150	220	8.6	.6	7.1	486	481	.66	19400	.06
FEB 26...	150	240	8.4	.6	7.2	497	510	.68	20500	.08
MAR 09...	150	240	9.5	.7	7.0	488	505	.66	20400	.10
APR 30...	140	250	8.4	.7	7.3	536	504	.73	36000	.14
MAY 23...	140	240	7.9	.7	6.3	533	504	.72	20400	.14
JUN 14...	130	290	8.5	.6	6.7	581	556	.79	21800	.27
JUL 03...	140	250	5.0	.6	6.7	543	515	.74	20200	.16
AUG 02...	140	270	8.4	.6	7.7	536	533	.73	21000	.16
SEP 21...	150	270	8.3	.7	7.1	538	547	.73	12600	.39

06132000 MISSOURI RIVER BELOW FORT PECK DAM, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, KJEL-DAHL, TOTAL (MG/L AS N) (00625)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C) (00689)
OCT										
26...	--	.01	.87	.88	.56	.01	.01	6.1	--	--
NOV										
28...	--	.01	--	--	.35	.01	.01	2.5	--	--
DEC										
19...	--	.00	.36	.36	.15	.01	.01	--	3.2	.3
JAN										
31...	--	.02	.14	.16	.14	.02	.02	3.1	--	--
FEB										
26...	--	.03	.12	.15	.14	.02	.02	2.9	--	--
MAR										
09...	--	.09	.45	.54	--	.01	.02	--	3.3	.3
APR										
30...	--	.04	.42	.46	--	.02	.01	3.7	--	--
MAY										
23...	--	.07	--	--	.45	.02	.01	6.8	--	--
JUN										
14...	--	.04	.37	.41	.36	.01	.00	5.4	6.2	.2
JUL										
03...	--	.10	.86	.96	.85	.03	.02	4.5	--	--
AUG										
02...	--	.00	.10	.10	.04	.01	.00	3.0	--	--
SEP										
21...	.17	.00	.45	.45	.10	.01	.01	--	5.2	.2

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)
DEC									
19...	1315	3	4	100	100	--	9	0	0
MAR									
09...	1015	3	3	100	0	1	1	0	0
JUN									
14...	1245	3	3	0	0	1	1	0	0
SEP									
21...	1100	3	3	0	50	1	1	0	0

DATE	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO) (01037)	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)
DEC									
19...	2	<3	2	3	80	10	--	20	20
MAR									
09...	0	0	9	7	120	20	6	1	20
JUN									
14...	2	0	8	2	140	10	5	0	10
SEP									
21...	0	<3	1	2	100	<10	0	0	20

DATE	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG) (01077)	SILVER, DIS-SOLVED (UG/L AS AG) (01075)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
DEC									
19...	2	.0	.0	1	1	0	0	10	<3
MAR									
09...	20	.2	.1	1	1	0	0	50	50
JUN									
14...	20	.0	.1	1	1	0	0	20	20
SEP									
21...	6	--	.1	1	1	0	0	10	<3

06132000 MISSOURI RIVER BELOW FORT PECK DAM, MT--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	560	605	690	712	726	814	832	820	805	789	840	845
2	575	600	688	715	760	810	850	810	785	850	830	810
3	590	605	689	712	721	816	846	835	770	805	825	805
4	575	600	620	715	775	816	834	780	770	780	830	802
5	580	600	689	710	773	782	810	820	770	825	844	790
6	590	600	689	718	760	820	858	885	740	845	848	805
7	590	600	689	712	773	820	810	890	760	825	840	820
8	590	605	688	715	772	818	808	880	750	820	822	820
9	585	600	678	713	780	816	801	820	755	775	820	820
10	590	600	689	712	772	820	830	795	750	820	813	790
11	585	600	690	715	775	812	822	870	810	810	812	800
12	580	605	689	720	794	812	812	875	860	783	840	790
13	590	605	739	712	792	830	814	880	800	758	830	790
14	595	600	679	714	800	918	802	860	890	810	820	890
15	590	600	688	711	802	830	812	780	800	800	835	796
16	600	600	688	715	800	832	812	810	800	780	840	800
17	595	600	690	715	802	824	815	830	760	830	818	814
18	590	600	688	730	808	870	815	780	845	825	830	807
19	590	600	688	732	800	840	830	820	890	815	820	810
20	595	605	689	729	812	820	830	770	890	800	820	812
21	600	600	689	729	808	845	836	790	890	790	822	810
22	590	600	676	740	814	828	840	800	830	785	812	810
23	600	600	686	734	814	845	890	780	780	810	820	800
24	600	605	678	746	800	828	840	770	770	780	850	800
25	600	600	689	745	800	---	850	780	810	790	855	800
26	600	600	688	745	800	830	831	830	820	775	835	800
27	600	600	679	741	802	814	831	770	770	792	850	795
28	595	605	689	742	810	824	848	855	840	820	850	795
29	600	605	669	798	---	832	842	820	835	785	830	792
30	600	605	688	750	---	818	842	825	795	770	800	795
31	600	---	700	745	---	838	---	815	---	765	830	---
MEAN	592	602	686	727	787	831	830	821	805	800	830	807

WTR YR 1979 MEAN 760 MAX 940 MIN 575

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13.0	11.5	4.5	.5	1.0	1.0	2.0	3.0	4.5	7.0	7.5	7.5
2	12.0	11.5	4.5	.5	.5	1.5	1.5	3.5	5.0	7.0	7.5	8.0
3	13.5	11.0	4.5	.5	.5	2.0	2.0	2.5	5.5	6.5	7.5	8.0
4	12.5	11.0	4.5	.5	.5	2.0	1.5	2.5	5.5	7.0	7.5	7.5
5	13.0	11.0	4.0	.5	.5	2.0	1.5	2.5	5.0	6.5	7.0	8.5
6	13.5	11.0	3.0	.5	1.0	2.0	4.0	2.5	5.5	7.5	7.0	8.5
7	13.5	11.0	3.5	.5	.5	2.0	1.5	2.5	5.5	7.0	7.0	8.0
8	13.0	10.5	3.0	1.0	1.0	1.5	4.0	2.0	6.0	6.5	7.5	7.5
9	13.0	10.5	3.5	1.0	1.0	1.5	4.0	2.0	6.5	6.5	7.5	7.5
10	13.5	9.0	3.5	.5	1.0	2.0	3.0	3.0	6.5	7.0	8.0	9.5
11	12.5	9.0	3.0	1.0	1.0	2.5	2.0	3.0	7.0	6.5	8.0	9.5
12	12.0	9.0	3.0	.5	.5	1.5	2.0	3.0	6.5	7.0	7.5	9.0
13	12.5	8.5	3.0	.5	1.0	2.0	2.5	2.5	6.5	7.0	7.5	9.5
14	13.0	8.5	2.5	1.0	.5	2.0	3.0	3.0	5.5	7.5	8.0	9.5
15	13.0	8.0	3.0	.5	.5	2.0	2.5	3.5	6.0	7.5	8.0	8.0
16	12.5	8.5	2.5	.5	1.0	1.5	3.5	3.5	5.5	7.5	7.0	8.5
17	12.5	7.0	2.5	1.0	1.0	2.0	3.0	3.5	6.0	7.0	7.0	8.5
18	12.5	7.0	2.0	.5	1.0	2.5	2.5	3.5	6.5	6.5	7.0	9.0
19	12.5	7.0	2.0	1.0	1.0	1.5	2.0	4.0	6.5	6.5	7.5	8.5
20	13.0	6.5	2.0	1.5	1.5	2.0	2.0	4.5	5.5	7.0	8.0	8.5
21	12.0	6.5	2.5	1.0	1.0	2.0	3.0	4.5	5.5	7.0	7.5	9.0
22	12.0	6.0	2.0	1.0	1.0	2.0	3.0	4.0	6.0	7.0	8.0	9.0
23	12.0	6.0	1.5	1.0	.5	1.5	2.5	4.5	6.5	7.0	8.5	9.0
24	12.0	6.0	2.0	1.0	1.5	2.0	2.5	4.5	6.5	7.0	8.0	9.0
25	11.5	6.0	1.0	1.0	1.5	1.5	2.5	5.0	6.5	7.0	7.5	8.5
26	12.0	5.0	1.0	1.0	1.5	2.0	2.5	5.0	6.5	7.5	7.0	9.0
27	12.0	5.5	1.0	1.5	1.5	2.0	3.5	6.0	7.0	7.5	7.0	9.0
28	12.0	5.5	.5	1.0	1.5	1.5	3.5	4.5	6.5	7.5	7.0	9.5
29	12.0	5.0	---	.5	---	2.0	3.0	4.5	6.5	7.5	7.0	9.0
30	11.5	5.5	.5	.5	---	2.0	3.5	4.5	6.5	8.0	7.5	9.5
31	11.5	---	.5	.5	---	2.0	---	5.0	---	8.5	7.5	---
MEAN	12.5	8.0	2.5	1.0	1.0	2.0	2.5	3.5	6.0	7.0	7.5	8.5

WTR YR 1979 MEAN 5.0 MAX 13.5 MIN .5

06132000 MISSOURI RIVER BELOW FORT PECK DAM, MT--Continued

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPERATURE (DEG C) (00010)	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT						
26...	1200	12.0	14200	30	1150	88
NOV						
28...	1000	.5	13300	4	144	72
DEC						
19...	1315	.5	11500	70	2170	97
JAN						
31...	1430	.5	14800	17	679	--
FEB						
26...	1215	.5	15300	8	330	--
MAR						
09...	1015	.5	15500	11	460	--
APR						
30...	1130	6.0	24900	7	471	63
MAY						
23...	1100	7.5	14200	10	383	--
JUN						
14...	1245	7.0	13900	7	263	--
JUL						
03...	1100	10.0	13800	8	298	62
AUG						
02...	1000	8.0	14500	6	235	53
SEP						
21...	1100	10.5	8700	7	164	79

DATE	TIME	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	BAROMETRIC PRESSURE (MM OF HG) (00025)	WEATHER (WMO CODE NUMBER) (00041)
AUG									
02...	1000	800	8.1	24.5	8.0	10.8	98	705	0
02...	1100	--	--	--	9.0	11.1	103	--	--
02...	1200	--	--	--	9.5	11.3	107	--	--
02...	1300	840	8.2	27.5	10.5	11.6	112	705	1
02...	1400	--	--	--	10.5	11.6	112	--	--
02...	1500	--	--	--	11.0	11.9	116	--	--
02...	1600	840	8.2	29.5	11.0	12.0	117	704	1
02...	1700	--	--	--	11.0	12.0	117	--	--
02...	1800	--	--	--	10.5	12.0	116	--	--
02...	1900	830	8.1	23.0	10.0	11.8	113	704	1
02...	2000	--	--	--	9.0	11.6	108	--	--
02...	2100	--	--	--	9.0	11.3	106	--	--
02...	2200	830	8.1	18.5	8.0	10.9	99	704	0
02...	2300	--	--	--	8.0	10.6	99	--	--
02...	2400	--	--	--	7.5	10.3	93	--	--
03...	0100	--	--	--	7.5	10.0	90	--	--
03...	0200	--	--	--	7.0	10.0	89	--	--
03...	0300	--	--	--	7.0	9.9	88	--	--
03...	0400	--	--	--	7.0	9.8	87	--	--
03...	0500	830	8.2	16.5	7.0	9.8	87	705	1
03...	0600	--	--	--	7.0	9.7	86	--	--
03...	0700	--	--	--	7.0	9.9	88	--	--
03...	0800	848	8.2	21.0	7.0	10.3	89	722	--
03...	0900	--	--	--	7.5	10.5	91	--	--
03...	1000	826	8.2	22.0	8.5	10.8	94	722	--

06132000 MISSOURI RIVER BELOW FORT PECK DAM, MT--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

PERIPHYTON

DATE	TIME	LENGTH OF EXPO-SURE (DAYS) (00022)	PERI-PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M (00573)	PERI-PHYTON BIOMASS ASH WEIGHT G/SQ M (00572)	CHLOR-A PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2) (70957)	CHLOR-B PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2) (70958)	BIOMASS CHLORO-PHYLL RATIO PERI-PHYTON (UNITS) (70950)
JUL 03...	1100	19	4.02	2.83	32.8	6.70	36.3
AUG 02...	1000	30	3.15	2.05	5.23	.860	210
SEP 21...	1100	50	.830	.550	2.22	.570	36.0

PHYTOPLANKTON

DATE	MAR 9,79	JUN 14,79
TIME	1015	1245
TOTAL CELLS/ML	180	1000
DIVERSITY: DIVISION	0.0	1.6
.CLASS	0.0	1.6
..ORDER	0.0	2.0
...FAMILY	0.0	2.2
....GENUS	0.0	2.4

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)				
.CHLOROPHYCEAE				
..CHLOROCOCCALES				
...SCENEDESMACEAE				
....CRUCIGENIA	--	-	210*	20
....SCENEDESMUS	--	-	26	3
..VOLVOCALES				
...CHLAMYDOMONADACEAE				
....CHLAMYDOMONAS	--	-	13	1
CHRYSOPHYTA				
.BACILLARIOPHYCEAE				
..CENTRALES				
...COSCINODISCACEAE				
....CYCLOTELLA	--	-	39	4
....MELOSIRA	--	-	52	5
..PENNALES				
...FRAGILARIACEAE				
....ASTERIONELLA	--	-	310*	30
...NAVICULACEAE				
....NAVICULA	--	-	13	1
...NITZSCHIACEAE				
....NITZSCHIA	--	-	13	1
...TABELLARIACEAE				
....TABELLARIA	--	-	13	1
CYANOPHYTA (BLUE-GREEN ALGAE)				
.CYANOPHYCEAE				
..CHROOCOCCALES				
...CHROOCOCCACEAE	180*	100	--	-
..HORMOGONALES				
...OSCILLATORIACEAE				
....OSCILLATORIA	--	-	320*	32
EUGLENOPHYTA (EUGLENOIDS)				
.EUGLENOPHYCEAE				
..EUGLENALES				
...EUGLENACEAE				
....TRACHELOMONAS	--	-	13	1

06132000 MISSOURI RIVER BELOW FORT PECK DAM, MT--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

PHYTOPLANKTON

DATE TIME	JUL 3,79 1100	AUG 2,79 1000	SEP 21,79 1100
TOTAL CELLS/ML	1300	100	730
DIVERSITY: DIVISION	0.1	1.1	1.3
.CLASS	0.1	1.1	1.5
..ORDER	0.2	1.1	2.1
...FAMILY	0.2	2.4	2.6
....GENUS	0.2	2.4	2.6

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...OOCYSTACEAE						
....ANKISTRODESMUS	--	-	--	-	14	2
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CARTERIA	--	-	--	-	14	2
....CHLAMYDOMONAS	--	-	13	13	--	-
CHRYSOPHYTA						
.BACILLARIOPHYCEAE						
..CENTRALES						
...COSCINODISCACEAE						
....CYCLOTELLA	13	1	--	-	55	8
..PENNALES						
...ACHNANTHACEAE						
....ACHNANTHES	--	-	13	13	--	-
....RHOICOSPHENIA	--	-	--	-	14	2
...DIATOMACEAE						
....DIATOMA	--	-	39#	38	69	9
...GOMPHONEMATACEAE						
....GOMPHONEMA	--	-	--	-	14	2
...NAVICULACEAE						
....NAVICULA	--	-	13	13	120#	17
...NITZSCHIACEAE						
....NITZSCHIA	13	1	13	13	--	-
.CHRYSOPHYCEAE						
..CHRYSOMONADALES						
...OCHROMONADACEAE						
....OCHROMONAS	--	-	--	-	27	4
CRYPTOPHYTA (CRYPTOMONADS)						
.CRYPTOPHYCEAE						
..CRYPTOMONADALES						
...CRYPTOMONADACEAE						
....CRYPTOMONAS	--	-	13	13	-	-
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..CHROOCOCCALES						
...CHROOCOCCACEAE						
....ANACYSTIS	--	-	--	-	55	8
..HORMOGONALES						
...OSCILLATORIACEAE						
....OSCILLATORIA	1300#	98	--	-	330#	45
EUGLENOPHYTA (EUGLENOIDS)						
.EUGLENOPHYCEAE						
..EUGLENALES						
...EUGLENACEAE						
....EUGLENA	--	-	--	-	14	2

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
 * - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

06132200 SOUTH FORK MILK RIVER NEAR BABB, MT

(International gaging station)

LOCATION.--Lat 48°45'14", long 113°10'00", in NE¼NW¼NW¼ sec.34, T.35 N., R.12 W., Glacier County, Hydrologic Unit 10050001, on right bank 300 ft (91 m) upstream from bridge on FAS 464 ("Duck Lake Road"), 14.4 mi (23.2 km) southeast of Babb, and 15.2 mi (24.5 km) northwest of Browning.

DRAINAGE AREA.--68.6 mi^2 (177.7 km^2).

PERIOD OF RECORD.--May 1961 to current season (seasonal records only).

GAGE.--Water-stage recorder. Datum of gage is 4,731.6 ft (1,442.19 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for winter period and those for Sept. 11 to Oct. 30 (backwater from beaver dam), which are poor. Many small diversions for irrigation above station. Several observations of water temperature were made during the year and are available in files of Helena district office.

COOPERATION.--This is one of a number of stations which are maintained jointly by the United States and Canada.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,000 ft^3/s (340 m^3/s) June 8, 1964, gage height, 6.61 ft (2.015 m), from rating curve extended above 400 ft^3/s (11.3 m^3/s) on basis of slope-area measurement of peak flow at site 3 mi (5 km) downstream; maximum gage height, 6.78 ft (2.067 m) June 20, 1975 (backwater from bridge); no flow Aug. 23, 1973, June 28 to Aug. 14, 1977.

EXTREMES FOR CURRENT SEASON.--Maximum discharge, 276 ft^3/s (7.82 m^3/s) May 6, gage height, 4.02 ft (1.225 m); maximum gage height, 4.91 ft (1.497 m) Mar. 8 (backwater from ice); minimum daily discharge, 3.5 ft^3/s (0.099 m^3/s) Sept. 29, 30.

CORRECTION.--In MT-78-1 the mean daily values table was published on a water year basis instead of a seasonal year, thus omitting October 1978. The October values are as follows:

1. . . 15	5. . . 17	9. . . 17	13. . . 15	17. . . 17	21. . . 18	25. . . 27	29. . . 20
2. . . 16	6. . . 17	10. . . 16	14. . . 16	18. . . 21	22. . . 21	26. . . 25	30. . . 22
3. . . 17	7. . . 17	11. . . 16	15. . . 16	19. . . 21	23. . . 23	27. . . 23	31. . . 21
4. . . 17	8. . . 17	12. . . 15	16. . . 16	20. . . 18	24. . . 25	28. . . 21	

TOTAL 586 MEAN 18.9 MAX 27 MIN 15 IN .32 AC-FT 1,160

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	18				13	26	227	91	39	17	11
2	16	---				12	26	170	82	42	15	9.2
3	17	---				13	24	151	77	40	15	8.3
4	17	---				15	22	124	76	39	15	7.4
5	17	---				19	25	161	76	45	16	6.9
6	17	---				22	33	240	110	44	15	6.5
7	17	---				100	53	180	118	39	13	6.3
8	17	---				169	74	127	104	38	12	6.1
9	17	---				150	90	106	85	34	12	5.5
10	16	---				114	66	92	75	32	11	5.5
11	16	---				96	51	103	70	30	11	5.5
12	15	---				82	43	136	65	29	11	6.1
13	15	---				70	42	152	62	29	12	5.3
14	16	---				61	43	163	57	28	13	4.8
15	16	---				54	44	167	56	29	17	4.5
16	16	---				50	57	198	55	30	14	3.9
17	17	---				54	108	211	66	27	11	3.7
18	24	---				59	168	164	166	26	9.4	3.9
19	21	---				65	158	153	142	24	11	4.1
20	18	---				56	105	133	86	23	21	4.1
21	18	---				48	84	127	68	22	23	4.5
22	21	---				44	81	124	58	22	22	4.8
23	23	---				42	73	121	52	21	16	4.5
24	25	---				41	59	124	48	20	16	4.5
25	27	---				38	59	134	44	24	23	4.3
26	25	---				36	108	133	42	30	21	4.3
27	23	---				34	152	131	40	27	18	4.1
28	21	---				33	202	123	42	22	14	3.7
29	20	---				32	213	107	40	22	12	3.5
30	22	---				31	197	96	39	22	10	3.5
31	21	---				28	---	99	---	19	11	---
TOTAL	586	---				1681	2486	4479	2192	918	457.4	160.3
MEAN	18.9	---				54.2	82.9	144	73.1	29.6	14.6	5.34
MAX	27	---				169	213	240	166	45	23	11
MIN	15	---				12	22	92	39	19	9.4	3.5
AC-FT	1160	---				3330	4930	8880	4350	1820	907	318

THE SEASON MARCH TO OCTOBER AC-FT 24,980

06133000 MILK RIVER AT WESTERN CROSSING OF INTERNATIONAL BOUNDARY

(International gaging station)

LOCATION.--Lat 49°00'27", long 112°32'42", in NE¼ sec.1, T.1, R.20 W., fourth meridian, in Alberta, Hydrologic Unit 10050001, on left bank 0.8 mi (1.3 km) north of international boundary, 22 mi (35 km) upstream from North Milk River, 23 mi (37 km) southwest of Milk River, Alberta, and at mile 680.4 (1,094.8 km).

DRAINAGE AREA.--397 mi^2 (1,028 km^2).

PERIOD OF RECORD.--March 1931 to current season (seasonal records only). Prior to October 1961, published as South Fork Milk River near international boundary.

REVISED RECORDS.--WSP 1389: 1934(M), 1935, 1936(M), 1937, 1942(M), 1947-48(M). WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 3,820 ft (1,160 m), from topographic map. Prior to Aug. 9, 1948, and Aug. 9, 1948, to Oct. 31, 1958, water-stage recorders at sites 0.4 mi (0.6 km) and 0.5 mi (0.8 km) downstream, respectively, at different datums.

REMARKS.--Records good except those for winter period, which are poor. Several small diversions for irrigation above station.

COOPERATION.--This is one of a number of stations which are maintained jointly by Canada and the United States.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,930 ft^3/s (225 m^3/s) June 9, 1964, gage height, 9.77 ft (2.978 m); maximum gage height, 12.55 ft (3.825 m) Mar. 18, 1976 (backwater from ice jam); no flow at times.

EXTREMES FOR CURRENT SEASON.--Peak discharges above base of 430 ft^3/s (12.2 m^3/s) and maximums(*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Mar. 11	1250	*1,050	29.7	a*7.65	2.332	May 2	1615	520	14.7	4.53	1.381
Apr. 10	1000	576	16.3	4.52	1.378	May 7	2115	626	17.7	4.76	1.451
Apr. 18	1730	768	21.7	4.85	1.478						

a--backwater from ice
Minimum discharge, 0.64 ft^3/s (0.018 m^3/s) Oct. 1, gage height, 1.98 ft (0.604 m).

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY 1979 TO DECEMBER 1979
MEAN VALUES

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1		---	2.5	104	468	143	45	16	13	.68		
2		---	5.0	103	500	137	40	14	11	.87		
3		---	7.4	101	404	124	38	11	13	.97		
4		---	22	108	348	113	39	9.6	12	.93		
5		---	79	118	303	105	41	7.9	9.3	.89		
6		---	145	131	415	102	41	5.9	7.6	1.1		
7		---	239	148	584	123	46	5.2	6.1	1.3		
8		---	465	276	544	158	46	4.4	4.8	1.7		
9		---	618	433	392	151	41	3.2	3.9	3.0		
10		---	774	513	287	127	38	3.0	3.4	5.3		
11		---	899	327	242	106	33	3.1	2.9	5.3		
12		---	1030	288	257	93	32	3.1	2.6	5.8		
13		---	899	276	336	85	28	2.9	2.2	6.7		
14		---	648	320	354	75	26	2.7	1.9	8.1		
15		---	455	331	353	72	23	2.2	1.7	9.0		
16		---	380	329	359	71	20	1.7	1.4	9.2		
17		---	332	422	367	80	19	1.4	1.2	9.7		
18		---	299	640	364	100	18	1.2	1.1	11		
19		---	281	578	288	175	17	1.2	1.1	11		
20		---	260	425	267	225	16	2.4	2.3	12		
21		---	236	323	238	149	14	8.3	2.0	14		
22		---	203	287	223	114	13	9.2	1.7	15		
23		---	190	286	219	93	12	12	1.6	16		
24		---	166	263	213	78	12	33	1.6	18		
25		---	145	244	214	68	12	24	1.4	19		
26		---	135	276	215	62	13	22	1.3	19		
27		2.5	131	388	203	59	12	19	1.2	19		
28		2.5	126	424	191	58	14	22	.69	20		
29		---	116	482	179	52	21	20	.71	17		
30		---	110	483	163	48	20	17	.78	15		
31		---	106	---	152	---	18	16	---	13		
TOTAL		---	9503.9	9427	9642	3146	808	304.6	115.68	289.54		
MEAN		---	307	314	311	105	26.1	9.83	3.86	9.34		
MAX		---	1030	640	584	225	46	33	13	20		
MIN		---	2.5	101	152	48	12	1.2	.71	.68		
AC-FT		---	18850	18700	19120	6240	1600	604	229	574		

THE SEASON MARCH TO OCTOBER AC-FT 65,920

NOTE.--Differences between figures published herein and corresponding figures in reports of the Water Survey of Canada are due to variations in automated program techiniques.

06133500 NORTH FORK MILK RIVER ABOVE ST. MARY CANAL, NEAR BROWNING, MT

(International gaging station)

LOCATION.--Lat 48°58'15", long 113°03'19", in NE¼NW¼NE¼ sec.16, T.37 N., R.11 W., Glacier County, Hydrologic Unit 10050001, on left bank 1.7 mi (2.7 km) upstream from outlet of canal, 1.9 mi (3.1 km) south of International boundary, and 29 mi (47 km) north of Browning.

DRAINAGE AREA.--61.8 mi² (160.1 km²).

PERIOD OF RECORD.--May 1911 to July 1912 and June to July 1918 (published as "near Browning"), May 1919 to current season (seasonal records only). Monthly discharge only for some periods published in WSP 1309. Records usually obtained at this station only when St. Mary Canal is in operation.

GAGE.--Water-stage recorder. Concrete control since 1936. Altitude of gage is 4,220 ft (1,290 m), from topographic map. Prior to June 20, 1921, nonrecording gages at several sites within 1 mi (2 km) of present site at different datums.

REMARKS.--Records good except those for May 10 to June 12, which are poor. Many small diversions for irrigation above station. Several observations of water temperature were made during the year and are available in files of Helena district office.

COOPERATION.--This is one of a number of stations which are maintained jointly by the United States and Canada.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,090 ft³/s (87.5 m³/s) May 8, 1967, gage height, 7.95 ft (2.423 m), from rating curve extended above 130 ft³/s (3.68 m³/s) on basis of slope-area measurements at gage heights 7.55 ft (2.301 m) and 7.95 ft (2.423 m); no flow Oct. 29, 1942.

EXTREMES FOR CURRENT SEASON.--Maximum discharge, 170 ft³/s (4.81 m³/s) Apr. 18, gage height, 2.53 ft (0.771 m); minimum, 14 ft³/s (0.40 m³/s) parts of many days; minimum gage height, 0.95 ft (0.290 m) Apr. 2.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY 1979 TO DECEMBER 1979
MEAN VALUES

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1				25	83	36	21	15	17	16	17	
2				26	64	34	21	15	16	17	---	
3				22	67	33	20	15	16	17	---	
4				22	58	33	20	16	16	16	---	
5				22	71	34	21	16	15	16	---	
6				31	80	35	20	15	16	16	---	
7				44	67	37	19	15	15	16	---	
8				41	65	35	16	15	15	18	---	
9				64	59	33	18	15	15	18	---	
10				54	54	32	17	15	15	17	---	
11				41	52	30	16	15	16	17	---	
12				38	58	29	17	16	17	17	---	
13				41	64	28	16	16	16	17	---	
14				46	62	27	16	17	16	17	---	
15				58	58	26	16	17	15	17	---	
16				86	54	26	16	16	15	18	---	
17				128	50	28	15	16	15	18	---	
18				122	47	42	15	15	15	17	---	
19				75	45	37	15	16	15	17	---	
20				63	44	29	15	19	16	17	---	
21				60	43	26	16	20	16	17	---	
22				56	43	25	15	19	16	17	---	
23				54	44	24	15	17	16	17	---	
24				50	46	23	15	17	16	17	---	
25				48	48	23	17	17	16	17	---	
26				68	46	22	17	18	16	17	---	
27				78	43	22	16	16	15	16	---	
28				88	39	24	16	16	15	17	---	
29				84	37	22	17	16	15	17	---	
30				61	35	21	16	16	16	17	---	
31				---	37	---	16	20	---	17	---	
TOTAL	---	---	---	1716	1663	676	526	507	469	525	---	---
MEAN	---	---	---	57.2	53.6	29.2	17.0	16.4	15.6	16.9	---	---
MAX	---	---	---	128	83	42	21	20	17	18	---	---
MIN	---	---	---	22	35	21	15	15	15	16	---	---
AC-FT	---	---	---	3400	3300	1740	1050	1010	930	1040	---	---

THE SEASON APRIL TO OCTOBER AC-FT 12,460

06134000 NORTH MILK RIVER NEAR INTERNATIONAL BOUNDARY

(International gaging station)

LOCATION.--Lat 49°01'19", long 112°58'16",in SW¼NE¼ sec.11, T.1, R.23 W., fourth meridian, in Alberta, Hydrologic Unit 10050001, on right bank 0.4 mi (0.6 km) upstream from highway bridge, 1.6 mi (2.6 km) north of international boundary, 2.8 mi (4.5 km) east of Whiskey Gap, Alberta, and 11 mi (18 km) southeast of Kimball, Alberta.

DRAINAGE AREA.--91.8 mi² (237.8 km²). Area at site used Apr. 12, 1930 to Aug. 15, 1962, 97.4 mi² (252.3 km²).

PERIOD OF RECORD.--July 1909 to October 1912 (seasonal records only), January 1913 to October 1922, March 1923 to current season (seasonal records only). Records for November and December 1912, published in WSP 1309, have been found to be unreliable and should not be used. Published as "near Kimball, Alberta" 1913-16. Prior to February 1962, published as North Fork Milk River near international boundary.

REVISED RECORDS.--WSP 1309: 1909-13, 1915(M), 1920(M), 1937(M). WSP 1559: 1948(M). WSP 1729: 1944(M), drainage area. See also PERIOD OF RECORD.

GAGE.--Water-stage recorder. Datum of gage is 4,112.16 ft (1,253.386 m) above mean sea level (Geodetic Surveys of Canada datum). Prior to May 1913, nonrecording gage at site 2 mi (3 km) downstream at different datum. May 1, 1913, to Apr. 11, 1930, water-stage recorder 700 ft (213 m) downstream at different datum. Apr. 12, 1930, to Aug. 15, 1962, water-stage recorder 1,500 ft (457 m) downstream at different datum.

REMARKS.--Records good except those for winter period, which are poor. Several small diversions for irrigation above station. For recorded diversions from St. Mary River into North Fork Milk River, see p. 27.

COOPERATION.--This is one of a number of stations which are maintained jointly by Canada and the United States.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,950 ft³/s (83.5 m³/s) June 17, 1948, gage height, 6.47 ft (1.972 m), site and datum then in use, from rating curve extended above 1,500 ft³/s (42.5 m³/s); no flow Mar. 1, 2, 1940.

EXTREMES FOR CURRENT SEASON.--Maximum discharge, 765 ft³/s (21.7 m³/s) June 18, gage height, 4.24 ft (1.292 m); minimum, 12 ft³/s (0.34 m³/s) Sept. 29, gage height, 1.43 ft (0.436 m).

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY 1979 TO DECEMBER 1979
MEAN VALUES

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1		---	15	39	89	535	547	633	568	14		
2		---	18	40	73	575	578	630	569	16		
3		---	20	31	74	572	601	629	567	16		
4		---	25	30	65	570	600	629	569	15		
5		---	50	31	76	584	604	632	570	14		
6		---	150	37	92	622	601	628	550	14		
7		---	290	65	85	676	630	626	510	14		
8		---	380	66	94	645	658	625	465	16		
9		---	290	97	80	669	656	622	297	17		
10		---	160	86	66	681	659	623	248	16		
11		---	136	59	69	673	654	616	199	15		
12		---	120	56	71	682	652	618	117	15		
13		---	99	70	76	696	647	618	61	16		
14		---	96	103	73	685	645	620	34	16		
15		---	100	109	73	695	640	618	25	16		
16		---	102	124	79	712	637	613	23	17		
17		---	78	161	185	715	636	614	22	17		
18		---	68	160	198	746	634	616	19	17		
19		---	65	101	200	727	630	620	14	17		
20		---	67	84	185	707	633	626	14	19		
21		---	60	74	183	698	636	640	14	19		
22		---	56	67	182	693	636	647	13	19		
23		---	59	65	182	688	633	649	14	16		
24		---	63	62	186	653	639	655	14	16		
25		---	59	61	176	681	642	655	14	16		
26		---	56	88	172	643	646	658	14	16		
27		15	48	89	165	592	645	653	13	17		
28		15	42	97	153	561	641	650	13	16		
29		---	40	90	151	552	640	605	13	16		
30		---	39	86	195	549	638	577	13	14		
31		---	33	---	381	---	634	583	---	14		
TOTAL		---	2886	2328	4127	19577	19572	19426	5576	508		
MEAN		---	93.1	77.6	133	653	631	627	186	16.4		
MAX		---	380	161	381	746	659	658	570	19		
MIN		---	15	30	65	535	547	577	13	14		
AC-FT		---	5720	4620	8190	38830	38820	38540	11060	1010		

THE SEASON MARCH TO OCTOBER AC-FT 146,800

NOTE.--Differences between figures published herein and corresponding figures in reports of the Water Survey of Canada are due to variations in automated program techniques.

06134500 MILK RIVER AT MILK RIVER, ALBERTA

(International gaging station)

LOCATION.--Lat 49°08'37", long 112°04'44", in NE¼ sec.21, T.2, R.16 W., fourth meridian, in Alberta, Hydrologic Unit 10050002, on right bank 5 ft (1.5 m) downstream from highway bridge at Milk River, Alberta, and 22 mi (35 km) downstream from North Milk River.

DRAINAGE AREA.--1,036 mi² (2,683 km²).

PERIOD OF RECORD.--June 1909 to October 1910 (no winter records), April 1911 to current year. Monthly discharge only for June 1909, published in WSP 1309.

REVISED RECORDS.--WSP 1309: 1912. WSP 1599: 1916, 1927(M), 1947(M). WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 3,402.78 ft (1,037.167 m) above mean sea level (Geodetic Surveys of Canada datum), Prior to June 17, 1919, nonrecording gages, and June 17, 1919, to Nov. 2, 1921, water-stage recorder at several sites 300 ft (91 m) upstream at datum 0.61 ft (0.186 m) higher. Nov. 3, 1921, to Aug. 28, 1947, water-stage recorder at site 60 ft (18 m) upstream at present datum. Aug. 29, 1947, to Nov. 10, 1976, water-stage recorder located 700 ft (213 m) downstream on left bank at present datum.

REMARKS.--Records good except those for winter months, which are poor. Since 1917, flow increased during irrigation season by water from St. Mary Canal (see p. 28). Several small diversions for irrigation above station.

COOPERATION.--This is one of a number of stations which are maintained jointly by Canada and the United States.

AVERAGE DISCHARGE.--63 years (1916-79), 326 ft³/s (9.232 m³/s), 236,200 acre-ft/yr (291 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,170 ft³/s (260 m³/s) June 21, 1975, gage height, 10.58 ft (3.225 m); maximum gage height, 11.45 ft (3.490 m) Mar. 21, 1978 (backwater from ice); no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,000 ft³/s (56.6 m³/s) Mar. 9, gage height, 9.92 ft (3.024 m), backwater from ice; minimum daily, 6.2 ft³/s (0.18 m³/s) Jan. 25-31.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	84	71	48	19	7.0	17	254	663	558	594	657	581
2	79	69	46	18	8.0	16	225	687	713	585	653	560
3	76	68	55	19	9.0	18	242	677	750	611	651	551
4	73	70	51	20	10	20	231	546	725	634	647	546
5	71	70	49	22	12	25	196	512	710	646	644	548
6	73	65	48	21	10	30	236	575	715	656	645	546
7	73	57	47	20	8.0	99	291	776	772	644	637	[illegible]
8	72	54	46	20	8.0	1200	429	858	829	677	634	[illegible]
9	72	52	54	19	11	1760	612	751	858	709	631	416
10	69	49	65	18	9.0	1750	869	560	839	707	627	306
11	71	48	66	17	7.0	1700	734	475	807	684	633	243
12	70	48	63	15	9.0	1510	549	428	780	681	631	206
13	68	49	60	14	11	1300	525	448	786	675	625	147
14	67	54	58	13	8.0	1110	532	467	767	665	625	106
15	66	60	57	13	7.0	1050	619	490	758	661	633	69
16	65	58	57	14	9.0	1000	654	481	786	663	624	56
17	66	55	57	16	15	960	703	483	821	658	616	39
18	67	52	56	17	23	912	906	578	833	653	612	36
19	66	50	52	18	22	798	984	609	890	651	615	36
20	65	48	54	19	21	651	768	569	945	652	634	34
21	68	45	55	15	18	570	611	541	905	655	638	33
22	72	42	56	12	14	504	529	507	836	653	652	30
23	70	47	57	9.0	13	500	496	490	801	650	651	29
24	73	54	58	7.0	17	500	502	483	786	662	673	28
25	74	57	56	6.2	24	407	462	483	759	667	679	28
26	76	58	51	6.2	23	344	435	474	740	676	671	28
27	76	57	46	6.2	20	281	544	460	720	679	669	27
28	77	57	39	6.2	18	251	610	439	674	676	664	26
29	78	56	33	6.2	---	291	667	417	617	672	655	25
30	75	52	27	6.2	---	300	690	398	603	673	605	24
31	71	---	21	6.2	---	291	---	400	---	666	585	---
TOTAL	2223	1672	1588	438.4	371.0	20165	16110	16787	23063	20437	19816	6298
MEAN	71.7	55.7	51.2	14.1	13.3	650	537	542	769	659	639	210
MAX	84	71	66	22	24	1760	984	858	945	709	679	581
MIN	65	42	21	6.2	7.0	16	196	398	558	585	585	24
AC-FT	4410	3320	3150	870	736	39990	31950	33300	45750	40540	39310	12490

CAL YR 1978 TOTAL 110086.0 MEAN 302 MAX 2500 MIN 11 AC-FT 218400
WTR YR 1979 TOTAL 128966.4 MEAN 353 MAX 1760 MIN 6.2 AC-FT 255800

NOTE.--Differences between figures published herein and corresponding figures in reports of the Water Survey of Canada are due to variations in automated program techniques.

06134850 MILK RIVER NEAR WRITING-ON-STONE PARK, ALBERTA

LOCATION.--Lat 49°05'18", long 111°32'05", in SW¼ sec.3, T.2, R.12 W., fourth meridian, in Alberta, Hydrologic Unit 10050002, on right bank at downstream side of bridge, approximately 4 mi (6 km) downstream from Writing-On-Stone Park, and 30 mi (48 km) east of Milk River, Alberta.

DRAINAGE AREA.--1,690 mi^2 (4,380 km^2).

PERIOD OF RECORD.--June 1978 to current season (seasonal records only).

GAGE.--Water-stage recorder. Altitude of gage is 2,970 ft (905 m), from topographic map.

REMARKS.--Records fair. Flow increased during irrigation season by water supplied from St. Mary Canal (see p. 28). Several small diversions for irrigation above station.

COOPERATION.--This is one of a number of stations which are maintained jointly by Canada and the United States.

EXTREMES FOR PERIOD OF RECORD.--Maximum recorded discharge, 3,350 ft^3/s (94.9 m^3/s) Aug. 23, 1978, gage height, 8.35 ft (2.545 m); minimum recorded, 26 ft^3/s (0.74 m^3/s) Oct. 5, 1979, gage height, 2.67 ft (0.814 m).

EXTREMES FOR CURRENT SEASON.--Maximum recorded discharge, 1,250 ft^3/s (35.4 m^3/s) Apr. 19, gage height, 5.52 ft (1.682 m); minimum recorded, 26 ft^3/s (0.74 m^3/s) Oct. 5, gage height, 2.67 ft (0.814 m).

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY 1979 TO DECEMBER 1979
MEAN VALUES

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1				---	798	416	652	738	590	29		
2				---	773	611	638	727	564	28		
3				---	606	749	627	719	548	28		
4				---	698	761	683	709	549	27		
5				---	627	738	702	705	539	27		
6				---	728	731	705	691	535	28		
7				---	939	769	699	691	531	28		
8				---	1120	839	703	681	490	29		
9				---	1050	911	748	664	448	29		
10				---	847	912	761	655	399	28		
11				1200	685	881	750	652	306	28		
12				803	580	845	743	639	249	28		
13				693	549	818	738	627	200	29		
14				655	576	802	739	618	135	30		
15				705	601	805	733	623	99	32		
16				782	590	815	733	623	75	33		
17				800	555	851	731	624	58	34		
18				935	581	864	724	612	48	35		
19				1140	707	903	717	624	45	37		
20				1010	635	947	710	641	43	40		
21				804	592	995	711	644	43	41		
22				661	541	911	720	663	42	42		
23				606	503	864	716	679	41	43		
24				600	480	828	725	691	39	45		
25				584	473	808	733	706	37	45		
26				547	467	794	747	716	36	46		
27				528	449	780	752	708	35	46		
28				698	427	759	747	692	33	46		
29				725	413	683	753	681	32	47		
30				774	401	656	747	662	30	48		
31				---	388	---	746	585	---	48		
TOTAL				---	19579	24046	22333	20690	6819	1104		
MEAN				---	632	802	720	667	227	35.6		
MAX				---	1120	995	761	738	590	48		
MIN				---	388	416	627	585	30	27		
AC-FT				---	38830	47700	44300	41040	13530	2190		

THE SEASON MAY TO OCTOBER AC-FT 187,600

NOTE.--Differences between figures published herein and corresponding figures in reports of the Water Survey of Canada are due to variations in automated program techniques.

06134950 MILK RIVER NEAR PENDANT d'OREILLE, ALBERTA

LOCATION.--Lat 49°07'25", long 110°52'15", in NW¼ sec.15, T.2, R.7 W., fourth meridian, in Alberta, Hydrologic Unit 10050002, on left bank, approximately 8 mi (13 km) southeast of Pendant d'Oreille gas plant, and 9 mi (14 km) south of Pendant d'Oreille.

DRAINAGE AREA.--2,330 mi^2 (6,030 km^2).

PERIOD OF RECORD.--June 1978 to current year (seasonal records only).

GAGE.--Water-stage recorder. Altitude of gage is 2,800 ft (850 m), from topographic map.

REMARKS.--Records poor. No discharge computations for periods May 11-15, July 22-31, Aug. 30 to Sept. 24. Flow increased during irrigation season by water supplied from St. Mary Canal (see p. 28). Several small diversions for irrigation above station.

COOPERATION.--This is one of a number of stations which are maintained jointly by Canada and the United States.

EXTREMES FOR PERIOD OF RECORD.--Maximum recorded discharge, 3,670 ft^3/s (104 m^3/s) Aug. 24, 1978, gage height, 7.68 ft (2.341 m); minimum recorded, 28 ft^3/s (0.79 m^3/s) Oct. 4, 1979, gage height, 2.85 ft (0.869 m).

EXTREMES FOR CURRENT SEASON.--Maximum recorded discharge, 1,120 ft^3/s (3.17 m^3/s) May 9, gage height, 5.74 ft (1.750 m); maximum recorded gage height, 5.79 ft (1.765 m) June 22; minimum recorded discharge, 28 ft^3/s (0.79 m^3/s) Oct. 4, gage height. 2.85 ft (0.869 m).

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY 1979 TO DECEMBER 1979
MEAN VALUES

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1				---	898	357	603	641	---	34		
2				---	868	345	580	624	---	31		
3				---	809	539	561	619	---	30		
4				---	792	839	543	591	---	34		
5				---	674	844	602	580	---	31		
6				---	725	769	620	578	---	32		
7				---	907	679	615	588	---	33		
8				---	1050	706	608	590	---	32		
9				---	1020	802	605	585	---	31		
10				---	854	837	661	593	---	36		
11				---	---	920	682	601	---	35		
12				---	---	839	669	591	328	34		
13				---	---	855	662	594	---	36		
14				---	---	762	655	592	---	37		
15				---	---	765	665	599	---	36		
16				---	663	773	654	600	---	36		
17				---	644	820	667	605	---	37		
18				898	610	863	658	604	---	37		
19				---	695	910	647	613	---	37		
20				---	841	907	635	604	---	38		
21				---	777	955	624	599	---	38		
22				---	648	966	---	594	---	38		
23				---	587	861	---	602	---	41		
24				672	559	752	---	596	---	41		
25				649	551	706	---	585	48	43		
26				681	539	706	---	594	40	43		
27				624	542	716	---	589	40	44		
28				669	511	722	---	591	39	44		
29				821	499	700	---	591	37	44		
30				838	441	612	---	---	34	44		
31				---	416	---	---	---	---	44		
TOTAL				---	---	22827	---	---	---	1151		
MEAN				---	---	761	---	---	---	37.1		
MAX				---	---	966	---	---	---	44		
MIN				---	---	345	---	---	---	30		
AC-FT				---	---	45280	---	---	---	2280		

NOTE.--Differences between figures published herein and corresponding figures in reports of the Water Survey of Canada are due to variations in automated program techniques.

06135000 MILK RIVER AT EASTERN CROSSING OF INTERNATIONAL BOUNDARY

(International gaging station)

LOCATION.--Lat 48°59'05", long 110°28'15", in NE¼NW¼ sec.7, T.37 N., R.10 E., Hill County, Hydrologic Unit 10050002, on right bank 1.1 mi (1.8 km) south of international boundary, 6.5 mi (10.5 km) upstream from Lost River, 12.5 mi (20.1 km) northwest of Simpson, 29.5 mi (47.5 km) north of Rudyard, and at mile 466.0 (749.8 km).

DRAINAGE AREA.--2,628 mi² (6,807 km²).

PERIOD OF RECORD.--August 1909 to current year. No winter record. A few winter records were collected and are on file in the Helena district office. Monthly discharge only for April 1912, published in WSP 1309.

REVISED RECORDS.--WSP 1086: 1927, 1935. WSP 1559: 1920(M), 1922(M), 1926, 1928(M), 1929, 1930(M), 1932(M). WSP 1729: 1921-13, 1921-22, 1929(M), drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,659.64 ft (810.658 m) National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to Oct. 1, 1970, water-stage recorder or nonrecording gages at several sites within 10.5 mi (16.9 km) upstream at different datums. Several observations of water temperature were made during the year and are available in files of Helena district office.

REMARKS.--Records fair except those for winter months, which are poor. Since 1917 flow increased during irrigation season by water from St. Mary Canal (see p. 28). Small diversions for irrigation above station.

COOPERATION.--This is one of a number of stations which are maintained jointly by the United States and Canada.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,700 ft³/s (303 hm³/s) Apr. 9, 1965, gage height, 9.53 ft (2.905 m), site and datum then in use, but may have been higher Mar. 28, 1952; maximum gage height, 13.65 ft (4.161 m), site and datum then in use Mar. 28, 1952 (backwater from ice); no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge recorded, 6,180 ft³/s (175 m³/s) Mar. 8, gage height, 10.69 ft (3.258 m), backwater from ice; minimum daily recorded, 5.0 ft³/s (0.14 m³/s) Feb. 27 to Mar. 3, but may have been less during the period the gage was out of operation.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	147				---	5.0	368	866	388	681	619	613
2	142				---	5.0	338	880	357	623	623	535
3	132				---	5.0	324	893	349	585	625	534
4	124				---	10	324	865	543	567	622	529
5	120				---	30	324	901	704	550	617	508
6	116				---	669	343	854	695	595	622	496
7	113				---	2940	389	957	669	607	619	492
8	110				---	5590	496	1140	692	596	605	504
9	108				---	3540	738	1270	704	581	607	510
10	106				---	3250	869	1180	750	580	588	523
11	104				---	3190	1120	1050	816	655	578	492
12	102				---	3170	1290	855	834	665	590	461
13	100				---	2920	1030	730	822	649	589	352
14	98				---	2670	850	651	801	652	605	280
15	96				---	2130	819	631	746	660	599	247
16	94				---	1870	789	619	734	662	593	192
17	92				---	1740	878	642	750	659	609	148
18	90				---	1700	944	637	761	650	596	122
19	89				---	1560	1060	642	816	643	594	111
20	86				---	1280	1310	665	835	640	580	101
21	83				---	1100	1190	719	897	636	589	86
22	79				---	979	969	639	974	630	607	77
23	75				---	884	851	641	965	629	607	73
24	80				---	825	812	613	854	641	631	69
25	87				---	747	790	605	797	658	659	66
26	85				---	647	739	583	777	653	653	61
27	83				5.0	530	699	551	756	644	667	58
28	81				5.0	450	687	532	765	648	659	54
29	87				---	446	694	476	749	643	639	48
30	93				---	450	829	445	732	642	607	46
31	90				---	400	---	411	---	655	602	---
TOTAL	3092				---	45732.0	22863	23163	22032	19579	19000	6388
MEAN	99.7				---	1475	762	747	734	632	613	280
MAX	147				---	5590	1310	1270	974	681	667	613
MIN	75				---	5.0	324	411	349	550	578	46
AC-FT	6130				---	90710	45350	45940	43700	38830	37690	16640

Wild Horse Lake closed basin

06135500 SAGE CREEK AT Q RANCH, NEAR WILD HORSE, ALBERTA

(International gaging station)

LOCATION.--Lat 49°06'29", long 110°13'23", in NW¼ sec.9, T.2, R.2 W., fourth meridian, in Alberta, Hydrologic Unit 10050003, on right bank 3.5 mi (5.6 km) north of Q Ranch buildings, 7.5 mi (12.1 km) north of Wild Horse Port of Entry, and 12.5 mi (20.1 km) north of Simpson, Mt.

DRAINAGE AREA.--175 mi^2 (453 km^2).

PERIOD OF RECORD.--March 1935 to current season (seasonal records only). March 1935 to October 1950 monthly discharge only, published in WSP 1309. March to October 1951 monthly discharge only, published in WSP 1729.

GAGE.--Water-stage recorder. Altitude of gage is 2,900 ft (884 m), from topographic map. Prior to Sept. 24, 1935, nonrecording gage at site 2 mi (3 km) downstream at different datum. Sept. 24, 1935, to Oct. 31, 1951, water-stage recorder at site 100 ft (30 m) upstream at datum 0.15 ft (0.046 m) higher.

REMARKS.--Records fair.

COOPERATION.--This is one of a number of stations which are maintained jointly by Canada and the United States.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,500 ft^3/s (99.1 m^3/s) Apr. 11, 1937, gage height, 15.87 ft (4.837 m), site and datum then in use, caused by failure of Elbow Coulee dam; no flow most of each season.

EXTREMES FOR CURRENT SEASON.--Maximum discharge, 395 ft^3/s (11.2 m^3/s) Mar. 17, gage height, 11.09 ft^3/s (3.380 m), backwater from ice; no flow on many days.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY 1979 TO DECEMBER 1979
MEAN VALUES

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1			.00	17	17	.18	.00	.00	.00	.00		
2			.00	18	13	.15	.00	.00	.00	.00		
3			.00	9.0	9.7	.11	.00	.00	.00	.00		
4			.00	4.0	8.6	.07	.00	.00	.00	.00		
5			.00	4.0	8.0	.05	.00	.00	.00	.00		
6			.00	2.5	10	.00	.00	.00	.00	.00		
7			.00	20	107	.00	.00	.00	.00	.00		
8			.00	296	110	.00	.00	.00	.00	.00		
9			.00	242	56	.00	.00	.00	.00	.00		
10			.00	207	22	.00	.00	.00	.00	.00		
11			.00	144	10	.00	.00	.00	.00	.00		
12			.00	82	6.5	.00	.00	.00	.00	.00		
13			.00	53	22	.00	.00	.00	.00	.00		
14			50	36	22	.00	.00	.00	.00	.00		
15			131	62	15	.00	.00	.00	.00	.00		
16			250	80	11	.00	.00	.00	.00	.00		
17			364	112	7.8	.00	.00	.00	.00	.00		
18			374	200	5.5	.00	.00	.00	.00	.00		
19			354	140	4.6	18	.00	.00	.00	.00		
20			361	51	3.3	41	.00	.00	.00	.00		
21			230	34	2.8	8.0	.00	.00	.00	.00		
22			200	31	2.2	2.5	.00	.00	.00	.00		
23			217	27	1.5	.93	.00	.00	.00	.00		
24			218	27	1.1	.45	.00	.00	.00	.00		
25			220	57	.87	.23	.00	.00	.00	.00		
26			120	46	.74	.13	.00	.00	.00	.00		
27			65	32	.57	.07	.00	.00	.00	.00		
28			48	29	.47	.00	.00	.00	.00	.00		
29			36	25	.35	.00	.00	.00	.00	.00		
30			24	22	.26	.00	.00	.00	.00	.00		
31			16	---	.22	---	.00	.00	---	.00		
TOTAL			3278.00	2109.5	480.08	71.87	.00	.00	.00	.00		
MEAN			106	70.3	15.5	2.40	.000	.000	.000	.000		
MAX			374	296	110	41	.00	.00	.00	.00		
MIN			.00	2.5	.22	.00	.00	.00	.00	.00		
AC-FT			6500	4180	952	143	.00	.00	.00	.00		

THE SEASON MARCH TO OCTOBER AC-FT 11,780

Note.--Differences between figures published herein and corresponding figures in reports of the Water Survey of Canada are due to variations in automated program techniques.

MILK RIVER BASIN

Wild Horse Lake closed basin

06136000 SAGE CREEK AT INTERNATIONAL BOUNDARY

(International gaging station)

LOCATION.--Lat 49°00'14", long 110°11'22", in SE¼ sec.3, T.1, R.2 W., fourth meridian, in Alberta, Hydrologic Unit 10050003, on right bank 0.3 mi (0.5 km) north of international boundary, 1.1 mi (1.8 km) east of Wild Horse Port of Entry, and 5.2 mi (8.4 km) north of Simpson, Mt.

DRAINAGE AREA.--220 mi^2 (570 km^2).

PERIOD OF RECORD.--March 1946 to current season (seasonal records only). Monthly discharge only for some periods, published in WSP 1309.

GAGE.--Water-stage recorder and concrete low-water control. Altitude of gage is 2,800 ft (853 m), from international boundary map. Prior to Sept. 22, 1950, at site 0.5 mi (0.8 km) downstream at different datum.

REMARKS.--Records poor. Many diversions for irrigation above station. All of the flow may be diverted at times. During the spring, high-water natural overflow occurs at many points along channel above and below gage.

COOPERATION.--This is one of a number of stations which are maintained jointly by Canada and the United States.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 66 ft^3/s (1.87 m^3/s) Apr. 12, 1978, gage height, 4.44 ft (1.353 m), backwater from snow; maximum gage height, 5.12 ft (1.561 m) Apr. 11, 1978 (backwater from snow); no flow most of each season.

EXTREMES FOR CURRENT SEASON.--Maximum discharge, 45 ft^3/s (1.27 m^3/s) Apr. 12, gage height, 4.57 ft (1.393 m), backwater from snow; no flow on many days.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY 1979 TO DECEMBER 1979
MEAN VALUES

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1			.00	.00	17	.45	.55	.00	.00	.00		
2			.00	.00	13	.40	.45	.00	.00	.00		
3			.00	.00	11	.40	.40	.00	.00	.00		
4			.00	.00	8.8	.35	.45	.00	.00	.00		
5			.00	.00	7.9	.20	.35	.00	.00	.00		
6			.00	.00	8.1	.10	.25	.00	.00	.00		
7			.00	.00	9.6	.07	.13	.00	.00	.00		
8			.00	.00	34	.03	.07	.00	.00	.00		
9			.00	.00	37	.07	.00	.00	.00	.00		
10			.00	.07	35	.03	.00	.00	.00	.00		
11			.00	3.4	20	.00	.00	.00	.00	.00		
12			.00	22	10	.00	.00	.00	.00	.00		
13			.00	42	7.2	.00	.00	.00	.00	.00		
14			.00	40	13	.00	.00	.00	.00	.00		
15			.00	38	17	.00	.00	.00	.00	.00		
16			.00	40	12	.00	.00	.00	.00	.00		
17			.00	41	9.4	.00	.00	.00	.00	.00		
18			.00	42	7.4	.00	.00	.00	.00	.00		
19			.00	43	6.3	.00	.00	.00	.00	.00		
20			.00	43	5.4	.00	.00	.00	.00	.00		
21			.00	40	4.3	35	.00	.00	.00	.00		
22			.00	28	3.3	19	.00	.00	.00	.00		
23			.00	23	3.1	9.0	.00	.00	.00	.00		
24			.00	22	2.5	5.4	.00	.00	.00	.00		
25			.00	21	1.9	3.3	.00	.00	.00	.00		
26			.00	34	1.5	1.4	.00	.00	.00	.00		
27			.00	35	1.2	.78	.00	.00	.00	.00		
28			.00	26	.94	.86	.00	.00	.00	.00		
29			.00	23	.78	.70	.00	.00	.00	.00		
30			.00	19	.65	.60	.00	.00	.00	.00		
31			.00	---	.55	---	.00	.00	---	.00		
TOTAL			.00	625.47	309.82	78.14	2.65	.00	.00	.00		
MEAN			.000	20.8	9.99	2.60	.085	.000	.000	.000		
MAX			.00	43	37	35	.55	.00	.00	.00		
MIN			.00	.00	.55	.00	.00	.00	.00	.00		
AC-FT			.00	1240	615	155	5.3	.00	.00	.00		

THE SEASON MARCH TO OCTOBER AC-FT 2,020

06137570 BOXELDER CREEK NEAR ROCKY BOY, MT

LOCATION.--Lat 48°18'07", long 109°50'37", in SW¼SW¼NW¼ sec.6, T.29 N., R.14 E., Hill County, Hydrologic Unit 10050005, on right bank 1,000 ft (305 m) upstream from Bonneau Reservoir, 4,000 ft (1,219 m) downstream from Wolf Creek, and 4.1 mi (6.6 km) northwest of Rocky Boy Agency.

DRAINAGE AREA.--48.2 mi^2 (124.8 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1975 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 3,225 ft (983 m), from topographic map.

REMARKS.--Water-discharge records poor Oct. 1 to June 18 and good June 19 to Sept. 30. Backwater from beaver dams Oct. 1 to June 18. No known regulation or diversions above station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 243 ft^3/s (6.88 m^3/s) Mar. 26, 1978, gage height, 6.86 ft (2.091 m), backwater from beaver dams; maximum gage height, 7.91 ft (2.411 m) Mar. 7, 1979 (backwater from ice); minimum discharge, 0.64 ft^3/s (0.018 m^3/s) Sept. 17, 1976, gage height, 3.79 ft (1.155 m).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 30 ft^3/s (0.85 m^3/s) and maximums(*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Mar. 7	2015	Unknown		a*7.91	2.411	Apr. 26	0100	55	1.56	5.99	1.826
Apr. 10	0100	35	0.99	5.76	1.756	May 6	2300	*100	2.83	6.37	1.942
Apr. 17	1900	83	2.35	6.28	1.914	June 19	0930	76	2.15	7.78	2.371

a - backwater from ice.

Minimum discharge, 1.2 ft^3/s (0.034 m^3/s) Aug. 31, gage height, 6.03 ft (1.838 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.8	6.6	6.6	6.2	4.5	3.7	5.8	46	40	18	6.5	3.8
2	5.8	6.6	6.6	6.2	4.5	3.6	5.6	44	39	16	6.3	3.8
3	5.6	6.4	6.8	6.2	4.7	3.6	5.8	43	36	15	6.4	3.7
4	6.4	6.4	6.6	6.1	4.8	4.0	5.4	42	34	19	6.1	3.7
5	5.8	6.4	6.6	6.2	5.0	10	5.4	46	33	21	5.7	2.9
6	5.8	6.4	6.6	6.2	4.7	50	8.0	67	33	17	5.2	2.7
7	5.8	6.4	6.6	6.2	4.4	80	26	86	39	15	4.6	2.4
8	6.2	6.6	6.6	6.2	4.4	45	20	71	37	13	4.7	2.1
9	6.6	6.8	6.6	6.0	4.8	35	28	59	31	13	4.5	1.8
10	6.4	6.6	6.8	5.8	4.5	25	29	56	29	12	4.8	1.9
11	6.6	6.6	7.0	5.6	4.3	27	17	61	27	10	4.4	2.6
12	6.8	6.6	6.8	5.4	4.3	29	12	61	26	9.9	4.6	3.3
13	6.6	6.6	6.8	5.2	4.3	32	10	61	24	9.7	4.5	3.2
14	6.6	6.6	6.8	5.0	4.2	25	11	63	23	9.6	4.5	2.8
15	6.6	6.6	6.8	5.2	3.9	29	14	63	22	9.7	4.5	2.4
16	6.6	6.6	6.6	5.4	4.0	33	26	73	23	9.5	4.8	2.0
17	7.1	6.6	6.6	5.4	4.2	29	62	77	25	9.1	3.4	1.8
18	7.3	6.4	6.6	5.4	4.4	16	63	74	24	8.6	3.3	1.7
19	7.3	6.4	6.6	5.6	4.3	14	48	73	49	8.0	3.3	1.7
20	7.3	6.4	6.6	5.8	4.2	13	40	66	41	7.6	2.8	1.7
21	7.1	6.4	6.8	5.8	4.1	12	37	62	28	7.3	4.0	1.7
22	7.1	6.4	6.8	5.4	3.9	12	35	60	24	7.2	4.8	1.6
23	6.8	6.6	6.8	5.4	3.6	10	36	58	22	7.9	4.4	2.2
24	6.8	6.6	6.8	5.2	3.7	16	39	57	20	7.4	3.6	2.3
25	7.3	6.6	6.6	5.0	4.1	21	38	58	19	8.4	3.9	2.4
26	7.6	6.6	6.5	4.8	4.1	12	46	55	18	13	4.0	2.6
27	7.1	6.8	6.4	4.8	4.0	9.2	36	54	17	11	3.7	2.3
28	6.8	7.0	6.2	4.7	3.6	8.0	40	54	16	8.5	3.3	2.3
29	7.1	6.6	6.0	4.5	---	7.4	41	49	16	8.1	3.1	1.9
30	7.1	6.6	5.8	4.5	---	7.1	43	45	15	8.1	2.6	2.0
31	7.1	---	6.0	4.5	---	6.5	---	42	---	7.4	1.9	---
TOTAL	206.9	197.2	204.5	169.9	119.7	628.1	835.0	1826	830	345.0	134.4	73.3
MEAN	6.67	6.57	6.60	5.48	4.28	20.3	27.8	58.9	27.7	11.1	4.34	2.44
MAX	7.6	7.0	7.0	6.2	5.0	80	63	86	49	21	6.5	3.8
MIN	5.6	6.4	5.8	4.5	3.6	3.6	5.4	42	15	7.2	1.9	1.6
AC-FT	410	391	406	337	237	1250	1660	3620	1650	684	267	145

CAL YR 1978 TOTAL 6818.5 MEAN 18.7 MAX 142 MIN 2.6 AC-FT 13520
WTR YR 1979 TOTAL 5570.0 MEAN 15.3 MAX 86 MIN 1.6 AC-FT 11050

06137570 BOXELDER CREEK NEAR ROCKY BOY, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1977 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS (MG/L AS CACO3) (00900)
OCT												
18...	1000	7.1	0	510	8.6	12.5	6.5	9.9	90	45	69	200
MAR												
15...	0900	E25	0	436	8.2	6.0	.0	12.0	92	53	200	150
MAY												
15...	1800	65	1	385	6.5	24.0	6.5	8.4	77	36	33	150
JUL												
19...	0800	E8.0	0	497	8.3	21.5	18.5	7.0	83	250	560	170

DATE	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)
OCT											
18...	0	45	21	56	1.7	5.9	290	--	19	3.2	.3
MAR											
15...	0	31	17	40	1.4	5.0	180	--	39	3.1	.2
MAY											
15...	0	37	15	31	1.1	5.4	180	1.1	28	1.8	.2
JUL											
19...	0	36	18	44	1.5	5.8	260	--	23	1.9	.2

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, KJEL-DAHL, TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)
OCT									
18...	22	347	.47	6.65	.01	.01	.69	.70	.09
MAR									
15...	16	260	.35	19.7	.25	.17	.54	.71	.13
MAY									
15...	12	239	.33	41.9	.01	.00	.40	.40	.08
JUL									
19...	21	309	.42	7.51	.01	.04	.53	.57	.18

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	BORON, DIS-SOLVED (UG/L AS B) (01020)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)
OCT									
18...	1000	2	2	0	0	150	0	0	0
MAR									
15...	0900	2	2	0	0	90	0	0	10
MAY									
15...	1800	2	1	0	0	110	1	0	0
JUL									
19...	0800	4	3	0	<1	160	0	<1	10

06137570 BOXELDER CREEK NEAR ROCKY BOY, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)
OCT									
18...	0	3	4	360	50	0	0	80	60
MAR									
15...	0	9	1	650	150	17	3	110	100
MAY									
15...	0	3	0	790	30	18	0	60	40
JUL									
19...	0	5	0	820	40	6	0	160	70

DATE	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
OCT								
18...	.0	.0	4	3	0	0	10	20
MAR								
15...	.2	.0	5	0	0	0	20	10
MAY								
15...	.1	.0	4	4	0	1	30	20
JUL								
19...	.2	.1	6	4	0	0	10	<5

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPER-ATURE (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT						
18...	1000	6.5	7.1	7	.13	--
MAR						
15...	0900	.0	E25	12	.81	--
MAY						
15...	1800	6.5	65	38	6.7	74
JUL						
19...	0800	18.5	E8.0	28	.60	--

06137580 SAGE CREEK NEAR WHITLASH, MT

LOCATION.--Lat 48°53'40", long 111°01'47", in NW¼NW¼SW¼ sec. 12, T.36 N., R.5 E., Liberty County, Hydrologic Unit 10050006, on left bank, 0.2 mi (0.3 km) downstream from bridge on Black Jack Road, 10 mi (16 km) southeast of Whitlash.

DRAINAGE AREA.--7.26 mi² (18.80 km²).

PERIOD OF RECORD.--October 1976 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 3,900 ft (1,189 m), from topographic map.

REMARKS.--Records good except those for period Oct. 1 to Jan. 31, which are fair, and those for Feb. 1 to Apr. 19, which are poor. No known regulation above station. Diversions for irrigation of about 40 acres (162,000 m²) abov station. Several observations of water temperature were made during the year and are available in files of Helena district office.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22 ft³/s (0.62 ft³/s) May 2, 1978, Mar. 7, Apr. 7, May 16, 1979; maximum gage height, 2.62 ft (0.799 m) Mar. 8, 1978 (backwater from ice); minimum discharge, no flow part of each day Nov. 20, 21, Dec. 5, 6, 18, 19, 24, 1977, Jan. 5, 1978, result of siphon action over weir.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 20 ft³/s (0.57 m³/s) and maximums (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 7	1245	*22	0.62	2.00	0.610	May 16	1900	22	0.62	1.51	0.460
Apr. 7	0900	22	0.62	*2.53	0.771						

Minimum discharge, 0.19 ft³/s (0.005 m³/s) Aug. 10-11, gage height, 0.06 ft (0.018 m), but may have been less during period of ice effect.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.8	1.5	1.1	.67	.25	1.8	1.5	11	7.1	1.8	.49	.42
2	2.6	1.4	1.1	.67	.20	1.7	1.3	9.5	6.5	1.6	.54	.44
3	2.4	1.4	1.1	.80	.21	1.7	1.2	9.2	6.1	1.5	.54	.44
4	2.4	1.5	1.0	.75	.21	3.0	1.0	9.4	5.7	1.5	.62	.53
5	2.1	1.5	.96	.74	.21	7.2	1.6	11	5.4	1.3	.60	.49
6	2.0	1.6	.89	.76	.31	9.5	8.2	15	5.5	1.3	.54	.42
7	1.9	1.7	.95	.82	.35	11	10	14	5.5	1.2	.54	.38
8	1.8	1.6	.91	.79	.35	4.1	2.6	12	4.9	1.1	.46	.36
9	1.7	1.2	.88	.74	.35	1.7	4.7	11	4.5	1.1	.51	.42
10	1.7	1.1	.91	.67	.39	3.0	2.7	11	4.2	.96	.46	.42
11	1.9	1.1	.98	.65	.27	4.2	1.7	13	4.0	.90	.36	.63
12	1.8	1.1	1.0	.60	.24	4.9	1.5	14	3.7	.88	.57	.63
13	1.7	1.0	1.1	.60	.90	4.6	1.4	15	3.5	.85	.51	.69
14	1.6	1.0	.97	.55	.97	3.4	1.7	15	3.4	.85	.49	.63
15	1.5	1.2	.97	.55	.56	3.3	1.9	18	3.3	.87	.46	.49
16	1.5	1.3	.95	.55	.27	3.3	6.0	21	3.2	.81	.36	.44
17	1.5	1.4	.90	.55	.61	2.5	7.0	19	3.2	.74	.41	.44
18	1.4	1.4	.90	.56	1.0	2.2	8.0	17	3.0	.70	.48	.42
19	1.4	1.4	.85	.61	1.5	2.2	7.3	16	2.9	.65	.48	.44
20	1.4	1.4	.90	.56	2.0	4.5	6.9	15	2.9	.64	.53	.44
21	1.4	1.4	.90	.61	1.9	3.2	6.7	14	2.7	.59	.55	.42
22	1.5	1.3	.90	.67	1.8	1.9	6.6	14	2.6	.69	.55	.44
23	1.5	1.1	.91	.61	1.8	2.2	6.4	13	2.4	.66	.48	.44
24	1.6	1.1	.94	.56	1.9	2.6	6.0	14	2.2	.82	.69	.42
25	1.6	1.1	.92	.56	3.0	3.0	6.9	13	2.1	.98	.63	.42
26	1.5	1.1	.89	.47	3.4	2.6	8.9	13	2.1	.91	.63	.49
27	1.5	1.0	.90	.47	2.3	1.7	10	12	2.1	.74	.63	.63
28	1.5	.97	.85	.43	2.0	.86	11	10	1.9	.67	.49	.53
29	1.5	1.1	.86	.40	---	2.6	11	9.3	1.7	.64	.49	.58
30	1.5	1.1	.80	.35	---	4.1	11	8.4	1.7	.66	.44	.53
31	1.5	---	.80	.30	---	2.1	---	7.7	---	.52	.44	---
TOTAL	53.7	38.07	28.99	18.62	29.25	106.66	162.7	404.5	110.0	29.23	15.97	14.07
MEAN	1.73	1.27	.94	.60	1.04	3.44	5.42	13.0	3.67	.94	.52	.48
MAX	2.8	1.7	1.1	.82	3.4	11	11	21	7.1	1.8	.69	.69
MIN	1.4	.97	.80	.30	.20	.86	1.0	7.7	1.7	.52	.36	.36
AC-FT	107	76	58	37	58	212	323	802	218	58	32	29

CAL YR 1978 TOTAL 1401.44 MEAN 3.84 MAX 22 MIN .11 AC-FT 2780
WTR YR 1979 TOTAL 1012.16 MEAN 2.77 MAX 21 MIN .20 AC-FT 2010

06140500 MILK RIVER AT HAVRE, MT

LOCATION.--Lat 48°33'23", long 109°40'14", in NE¼SE¼SE¼ sec.5, T.32 N., R.16 E., Hill County, Hydrologic Unit 10050004, on upstream side of highway bridge on 7th Avenue East in Havre, 30 ft (9 m) downstream from Bullhook Creek, 9.4 mi (15.1 km) downstream from Big Sandy Creek, and 17 mi (27 kn) downstream from Fresno Dam, and at mile 417.8 (672.2 km) (from Montana Department of Natural Resources and Conservation River Mile Index).

DRAINAGE AREA.--5,844 mi² (15,136 km²), of which 670 mi² (1,735 km²) is probably noncontributing.

PERIOD OF RECORD.--May to November 1898, April 1899 to November 1922, March, April 1923, March, April 1952 (gage heights only, in WSP 1260-B), June 1953 (in WSP 1260-B), June 1953 (in WSP 1320-B), August 1954 to current year. Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WSP 1309: 1899-1900, 1902-4, 1907-8, 1909(M), 1912, 1917(M), 1920(M). WSP 1729: Drainage area.

GAGE.--Nonrecording gage read once or twice daily and crest-stage gage. Datum of gage is 2,461.11 ft (750.146 m) National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to Nov. 4, 1902, nonrecording gage at site 0.5 mi (0.8 km) upstream at different datum. Nov. 4, 1902, to Nov. 25, 1910, nonrecording gage at datum 0.47 ft (0.143 m) higher, Mar. 9, 1911, to July 13, 1920, nonrecording gage at present datum, and July 14, 1920, to Sept. 30, 1922, nonrecording gage at datum 4.00 ft (1.219 m) higher, all at site 30 ft (9 m) downstream.

REMARKS.--Records poor. Bullhook Creek flood-control project is designed to bypass damaging floods to Milk River channel several miles downstream. Diversions for irrigation of about 6,000 acres (24.3 km²) above station. Since 1917, flow increased during irrigation season by water from St. Mary Canal which diverts from the St. Mary River near Babb (see p. 26). Flow regulated by Fresno Reservoir (see p. 610,612). Several observations of water temperature were made during the year and are available in files of Helena district office.

AVERAGE DISCHARGE.--17 years (water years, 1900-1916), prior to operation of St. Mary Canal, 273 ft³/s (7.731 m³/s), 197,800 acre-ft/yr (244 hm³/yr); 31 years (water years, 1917-22, 1955-79), 441 ft³/s (12.49 m³/s), 319,500 acre-ft/yr (394 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, about 20,000 ft³/s (566 m³/s) Apr. 12, 1899, gage height, 19.3 ft (5.88 m), present datum, from floodmarks, from rating curve extended above 5,200 ft³/s (147 m³/s); no flow at times in several years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge observed, 3,420 ft³/s (96.9 m³/s) Mar. 16, gage height, 10.48 ft (3.194 m); maximum gage height, 12.77 ft (3.892 m) Mar. 15 (backwater from ice); minimum daily discharge, 20 ft³/s (0.57 m³/s) Dec. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	50	71	55	30	35	60	808	1280	794	966	1010	433
2	75	71	50	35	40	65	836	1360	857	958	943	433
3	249	71	60	40	45	70	822	1390	857	982	836	451
4	194	68	65	45	50	75	857	1410	808	1130	801	442
5	222	68	65	50	55	80	871	1430	773	1330	801	451
6	239	60	60	55	50	90	801	1490	857	1320	787	433
7	249	68	65	60	45	100	787	1580	958	1320	829	451
8	258	68	65	55	40	110	667	1640	1130	1320	864	461
9	258	45	70	50	45	120	808	1670	1160	1270	710	451
10	267	40	70	45	45	140	911	1810	1160	1210	645	480
11	917	35	75	50	40	160	1070	1860	1130	1090	645	451
12	685	40	75	45	45	200	1320	1860	1040	1090	645	433
13	850	45	70	40	45	300	1510	1630	1300	1090	766	433
14	607	45	70	35	40	500	1470	1440	1470	1200	885	433
15	591	45	65	40	35	1000	1410	1270	1520	1310	871	424
16	572	50	60	45	40	3160	1330	1160	1480	1320	878	433
17	572	50	55	50	50	2990	1350	1120	1240	1320	850	433
18	572	45	55	55	60	2640	1310	1060	1180	1480	822	365
19	572	45	50	60	60	2620	1390	1070	1320	1560	801	350
20	109	40	55	65	55	2390	1480	924	1350	1550	773	350
21	98	40	55	60	55	2170	1450	911	1280	1550	745	350
22	115	45	60	55	50	1970	1540	843	1320	1540	724	250
23	115	45	55	50	45	1880	1620	966	1110	1560	660	249
24	98	50	50	55	50	1600	1680	1010	1140	1620	652	249
25	98	50	45	50	60	1400	1640	943	1090	1700	652	249
26	98	55	40	45	70	1150	1570	545	1040	1560	645	239
27	80	60	35	40	65	891	1450	34	1030	1550	607	309
28	71	65	30	35	60	731	1360	80	958	1540	600	250
29	68	65	25	30	---	554	1230	857	1050	1230	490	169
30	64	60	20	25	---	500	1070	667	1030	1130	415	177
31	68	---	25	30	---	682	---	1020	---	1010	415	---
TOTAL	9281	1605	1695	1425	1375	30398	36418	36330	33432	40606	22767	11082
MEAN	299	53.5	54.7	46.0	49.1	981	1214	1172	1114	1310	734	369
MAX	917	71	75	65	70	3160	1660	1860	1520	1700	1010	480
MIN	50	35	20	25	35	60	667	34	773	958	415	169
AC-FT	18410	3180	3360	2830	2730	60290	72240	72060	66310	80540	45160	21980

CAL YR 1978 TOTAL 253765 MEAN 695 MAX 7700 MIN 10 AC-FT 503300
WTR YR 1979 TOTAL 226414 MEAN 620 MAX 3160 MIN 20 AC-FT 449100

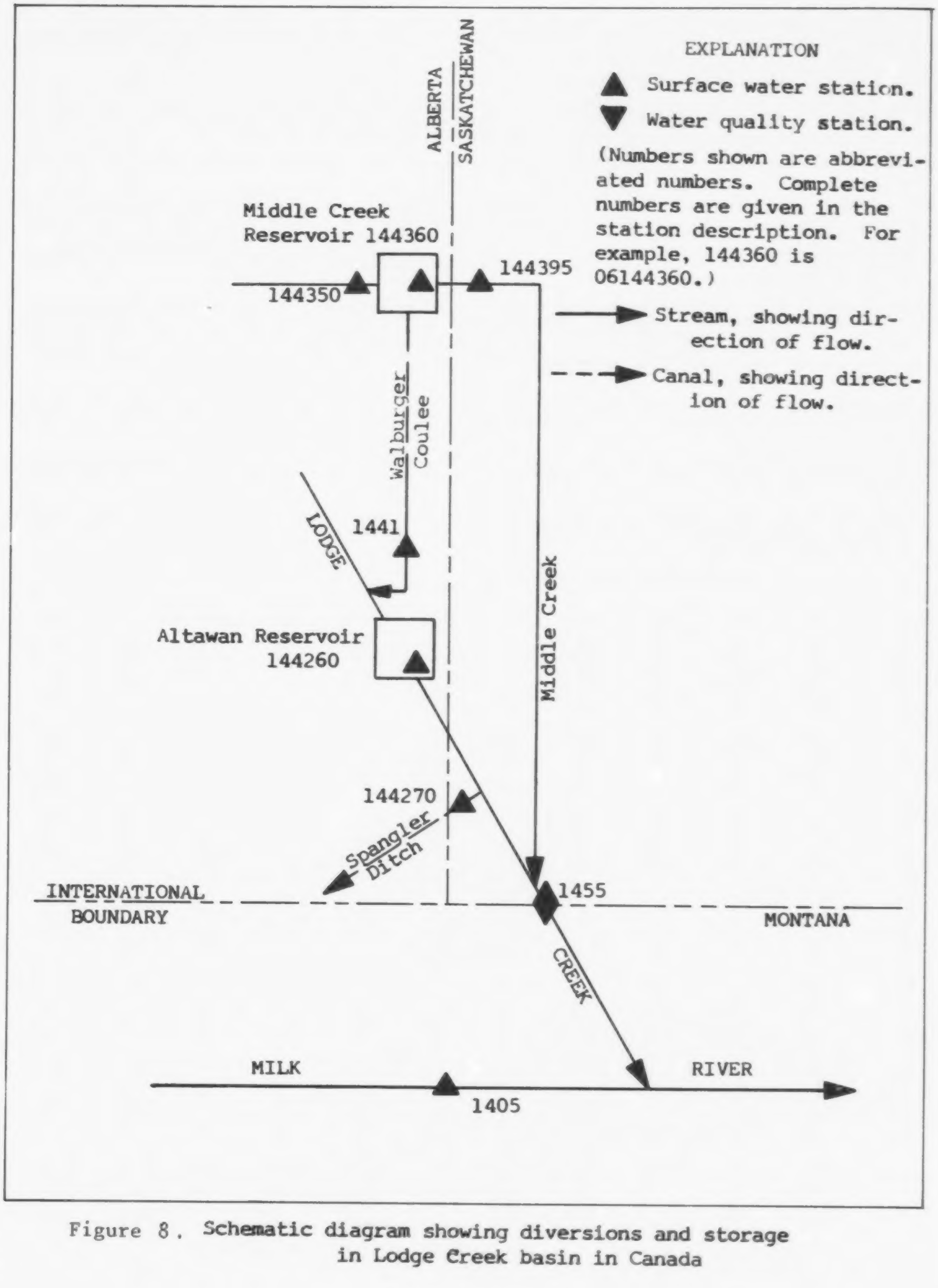

EXPLANATION
▲ Surface water station.
▼ Water quality station.
(Numbers shown are abbreviated numbers. Complete numbers are given in the station description. For example, 144360 is 06144360.)
Stream, showing direction of flow.
Canal, showing direction of flow.
ALBERTA
SASKATCHEWAN
Middle Creek Reservoir 144360
144350
144395
Walburger Coulee
LODGE
1441
Altawan Reservoir 144260
Middle Creek
144270
Spangler Ditch
INTERNATIONAL BOUNDARY
1455
MONTANA
CREEK
MILK
RIVER
1405

Figure 8. Schematic diagram showing diversions and storage in Lodge Creek basin in Canada

06144270 SPANGLER DITCH NEAR GOVENLOCK, SASKATCHEWAN

(International gaging station)

LOCATION.--Lat 49°09'16", long 109°54'58", in NW¼ sec.26, T.2, R.30 W., third meridian, Hydrologic Unit 10050007, on right bank 0.9 mi (1.4 km) south of Altawan Dam and 6.8 mi (10.9 km) southwest of Govenlock.

PERIOD OF RECORD.--March 1966 to current season. 1915 to 1936, March 1950 to current season, in reports of Department of the Environment, Canada. Seasonal records only. Estimates of seasonal diversion only in most years prior to March 1950.

GAGE.--Water-stage recorder. Altitude of gage is 2,920 ft (890 m), from topographic map. Prior to March 1950, nonrecording gages at several sites within 2 mi (3 km) of present site at different datums. March 1950 to July 8, 1960, water-stage recorder at site 350 ft (107 m) downstream at different datum.

REMARKS.--Records fair. No gage-height record Mar. 1 to Apr. 30. Canal diverts water from right bank of Lodge Creek in SW¼ sec.35, T.2, R.30 W., third meridian, for irrigation of 1,320 acres (5.3 km^2) under Spangler irrigation project.

COOPERATION.--This is one of a number of stations which are maintained jointly by Canada and the United States.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 65 ft^3/s (1.84 m^3/s) Apr. 22, 1950; no flow most of each season.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY 1979 TO DECEMBER 1979
MEAN VALUES

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1			.00	.00	.00	37	.12	33	.10	.00		
2			.00	.00	.00	38	.17	34	.13	.00		
3			.00	.00	.00	40	.28	26	.07	.00		
4			.00	.00	.00	41	.43	28	.08	.00		
5			.00	.00	.00	41	.32	28	.04	.00		
6			.00	.00	.00	34	.21	18	.04	.00		
7			.00	.00	.00	30	.16	.47	.03	.00		
8			.00	.00	.00	30	.10	.40	.00	.00		
9			.00	.00	.00	31	.09	.33	.00	.00		
10			.00	.00	.00	31	.02	.29	.03	.00		
11			.00	.00	.00	17	.02	.36	.04	.00		
12			.00	.00	.00	11	.06	.32	.02	.00		
13			.00	.00	.00	.35	.07	.27	.00	.00		
14			.00	.00	.00	.26	.07	.23	.00	.00		
15			.00	.00	.00	.24	.08	.16	.00	.00		
16			.00	.00	.00	.21	.03	.08	.00	.00		
17			.00	.00	.00	.21	.03	.09	.00	.00		
18			.00	.00	.00	.90	.02	.10	.00	.00		
19			.00	.00	.00	26	.00	.10	.00	.00		
20			.00	.00	.00	37	.00	.00	.00	.00		
21			.00	.00	.00	37	.00	.00	.00	.00		
22			.00	.00	.00	29	.00	.02	.00	.00		
23			.00	.00	.00	26	.01	.03	.00	.00		
24			.00	.00	9.3	33	2.7	.04	.00	.00		
25			.00	.00	18	29	31	.09	.00	.00		
26			.00	.00	19	13	36	.17	.00	.00		
27			.00	.00	20	.23	36	.15	.00	.00		
28			.00	.00	26	.14	36	.14	.00	.00		
29			.00	.00	31	.11	35	.13	.00	.00		
30			.00	.00	31	.12	1.4	.07	.00	.00		
31			.00	---	33	---	22	.03	---	.00		
TOTAL			.00	.00	187.30	613.77	202.39	171.07	.58	.00		
MEAN			.000	.000	6.04	20.5	6.53	5.52	.019	.000		
MAX			.00	.00	33	41	36	34	.13	.00		
MIN			.00	.00	.00	.11	.00	.00	.00	.00		
AC-FT			.00	.00	372	1220	401	339	1.2	.00		

THE SEASON MARCH TO OCTOBER AC-FT 2,330

NOTE.--Differences between figures published herein and corresponding figures in reports of the Water Survey of Canada are due to variations in automated program techniques.

06144350 MIDDLE CREEK NEAR ALBERTA BOUNDARY

(International gaging station)

LOCATION.--Lat 49°25'30", long 110°03'08", in SW¼ sec.34, T.5, R.1 W., fourth meridian, Hydrologic Unit 10050007, on left bank 2 mi (3 km) upstream from Middle Creek Reservoir and 18 mi (29 km) northwest of Govenlock, Saskatchewan.

DRAINAGE AREA.--116 mi² (300 km²).

PERIOD OF RECORD.--March 1963 to current season. June 1910 to April 1915 and September 1949 to current season in reports of Department of the Environment, Canada. Seasonal records only. Published as "at McKinnon's Ranch" 1910-15.

GAGE.--Water-stage recorder. Datum of gage is 3,381.13 ft (1,030.568 m) above mean sea level (Geodetic Surveys of Canada datum). Prior to Mar. 1, 1951, nonrecording gages, and Mar. 1, 1951, to July 5, 1961, water-stage recorder, at site 0.3 mi (0.5 km) downstream at different datums.

REMARKS.--Records good except those for winter period, which are poor. Minor diversions for irrigation above station.

COOPERATION.--This is one of a number of stations which are maintained jointly by Canada and the United States.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,980 ft³/s (141 m³/s) Apr. 15, 1952, gage height, 10.27 ft (3.130 m), site and datum then in use, from rating curve extended above 600 ft³/s (17.0 m³/s) on basis of slope-area measurement of peak flow; no flow at times.

EXTREMES FOR CURRENT SEASON.--Maximum discharge, 526 ft³/s (14.9 m³/s) Apr. 18 gage height, 7.40 ft (2.256 m); minimum daily, 0.11 ft³/s (0.003 m³/s) Mar. 1-6.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY 1979 TO DECEMBER 1979
MEAN VALUES

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1			.11	9.8	23	1.8	1.6	.95	.67	.58		
2			.11	7.5	19	1.8	1.3	.88	.69	.59		
3			.11	6.0	15	1.8	1.2	.99	.70	.55		
4			.11	4.3	12	1.7	1.3	1.2	.72	.55		
5			.11	3.0	11	1.7	1.3	1.0	.63	.52		
6			.11	2.5	13	1.5	1.2	.88	.61	.54		
7			.35	14	41	1.5	1.1	.81	.61	.54		
8			3.5	84	37	1.5	1.1	.74	.61	.53		
9			11	207	18	1.5	1.1	.67	.60	.58		
10			14	230	12	2.5	1.0	.71	.69	.52		
11			18	147	8.7	3.8	.96	.67	.73	.50		
12			21	87	6.6	3.1	.95	.64	.71	.49		
13			35	71	6.2	1.8	.92	.65	.71	.48		
14			71	78	9.3	1.4	.90	.70	.71	.52		
15			60	66	11	1.3	.95	.70	.72	.49		
16			79	85	10	1.4	.96	.66	.69	.48		
17			92	158	9.5	1.4	.96	.64	.67	.52		
18			107	389	14	1.4	.94	.68	.68	.50		
19			121	224	19	2.8	.94	.68	.64	.48		
20			128	124	13	1.5	.91	.69	.63	.49		
21			109	81	14	1.4	.97	.71	.64	.49		
22			88	57	9.1	1.3	.98	.78	.68	.45		
23			76	46	6.0	1.3	.98	.76	.72	.44		
24			81	40	3.8	1.3	1.1	.73	.69	.48		
25			104	31	3.0	1.2	1.2	.75	.70	.51		
26			88	28	2.5	1.2	1.2	.76	.68	.49		
27			53	28	2.3	1.2	1.1	.78	.63	.52		
28			30	26	2.1	1.2	1.1	.78	.63	.51		
29			19	30	2.0	1.2	1.1	.76	.64	.54		
30			15	26	2.0	1.5	1.1	.72	.60	.57		
31			12	---	1.9	---	1.0	.68	---	.56		
TOTAL			1436.51	2390.1	357.0	50.0	33.42	23.75	20.03	16.01		
MEAN			46.3	79.7	11.5	1.67	1.08	.77	.67	.52		
MAX			128	389	41	3.8	1.6	1.2	.73	.59		
MIN			.11	2.5	1.9	1.2	.90	.64	.60	.44		
AC-FT			2850	4740	708	99	66	47	40	32		

THE SEASON MARCH TO OCTOBER AC-FT 8,580

NOTE.--Differences between figures published herein and corresponding figures in reports of the Water Survey of Canada are due to variations in automated program techniques.

06144395 MIDDLE CREEK BELOW MIDDLE CREEK RESERVOIR, NEAR GOVENLOCK, SASKATCHEWAN

(International gaging station)

LOCATION.--Lat 49°24'44", long 109°55'06", in SW¼ sec.25, T.5, R.30 W., third meridian, Hydrologic Unit 10050007, on right bank 9.8 mi (15.8 km) downstream from Middle Creek Reservoir and 14 mi (23 km) northwest of Govenlock.

DRAINAGE AREA.--161 mi² (417 km²).

PERIOD OF RECORD.--April 1972 to current season. July 1909 to May 1931, September 1935 to October 1936, and April 1972 to current season in reports of Department of the Environment, Canada. Seasonal records only. Published as "at Ross Ranch" 1909-20, "at Downes and Robert's Ranch" 1920-23, and "at Wright's Ranch" 1920-31, 1935-36. Discharge measurements only during 1928 season.

GAGE.--Water-stage recorder. Altitude of gage is 3,300 ft (1,010 m), from topographic map. Prior to April 1972, nonrecording gages at two sites within 2 mi (3 km) of present site, at different datums.

REMARKS.--Records good except those for winter period, which are poor. Flow completely regulated by Middle Creek Reservoir (see p. 224). Many diversions for irrigation above station. Flow may be diverted to Lodge Creek through Middle Creek Reservoir. Diversions for irrigation of 920 acres (3.7 km²) between Middle Creek Reservoir and station.

COOPERATION.--This is one of a number of stations which are maintained jointly by Canada and the United States.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge recorded, 58 ft³/s (1.64 m³/s) Apr. 18, 1974; no flow at times most seasons.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY 1979 TO DECEMBER 1979
MEAN VALUES

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1			.00	.04	.00	.00	1.4	.00	.00	.00		
2			.00	.04	.00	.00	.14	.00	.00	.00		
3			.00	.04	.00	.00	.00	.00	.00	.00		
4			.00	.04	.00	.00	.00	.00	.00	.00		
5			.00	.04	.00	.00	.00	1.9	.00	.00		
6			.00	.04	.00	.00	.00	5.7	.00	.00		
7			.00	1.3	.00	3.1	.00	5.1	.00	.00		
8			.00	.35	.00	5.0	.00	7.8	.00	.00		
9			.00	.32	.00	9.5	.00	5.6	.00	.00		
10			.00	.28	.00	32	.00	.32	.00	.00		
11			.00	.14	.00	34	.00	.04	.00	.00		
12			.00	.11	.00	7.6	.00	.00	.00	.00		
13			.18	.07	.00	4.6	.00	.00	.00	.00		
14			15	.04	.00	3.7	.00	.00	.00	.00		
15			16	.00	.00	5.4	.00	.00	.00	.00		
16			13	.00	.00	12	.00	.00	.00	.00		
17			9.9	.04	.00	8.1	.00	.00	.00	.00		
18			6.8	.04	.00	3.2	.00	.00	.00	.00		
19			5.3	.04	.00	7.3	.00	.00	.00	.00		
20			4.4	.00	.00	25	.00	.00	.00	.00		
21			4.1	.00	.00	19	.00	.00	.00	.00		
22			3.2	.00	.00	9.4	.00	.00	.00	.00		
23			1.3	.00	.00	3.2	.00	.00	.00	.00		
24			1.5	.00	.00	.57	.00	.00	.00	.00		
25			.39	.00	.00	.07	.00	.00	.00	.00		
26			.14	.00	.00	.00	.00	.00	.00	.00		
27			.07	.00	.00	.00	.00	.00	.00	.00		
28			.07	.00	.00	.00	.00	.00	.00	.00		
29			.07	.00	.00	.00	.00	.00	.00	.00		
30			.07	.00	.00	2.5	.00	.00	.00	.00		
31			.07	---	.00	---	.00	.00	---	.00		
TOTAL			81.56	2.97	.00	195.24	1.54	26.46	.00	.00		
MEAN			2.63	.099	.000	6.51	.050	.85	.000	.000		
MAX			16	1.3	.00	34	1.4	7.8	.00	.00		
MIN			.00	.00	.00	.00	.00	.00	.00	.00		
AC-FT			162	5.9	.00	387	3.1	52	.00	.00		

THE SEASON MARCH TO OCTOBER AC-FT 610

NOTE.--Differences between figures published herein and corresponding figures in reports of the Water Survey of Canada are due to variations in automated program techniques.

06145500 LODGE CREEK BELOW MCRAE CREEK, AT INTERNATIONAL BOUNDARY

(International gaging station)

LOCATION.--Lat 49°00'20", long 109°43'05", in SW¼ sec.5, T.1, R.28 W., third meridian, in Saskatchewan, Hydrologic Unit 10050007, on right bank 0.3 mi (0.5 km) downstream from McRae Creek, 0.4 mi (0.6 km) north of international boundary, 0.8 mi (1.3 km) northeast of Willow Creek Port of Entry, and 31 mi (50 km) north of Havre, Mt.

DRAINAGE AREA.--818 mi² (2,119 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1951 to current season (seasonal records only). Prior to October 1951, records were collected on both McRae Coulee (1927-51) and Lodge Creek above McRae Coulee (1910-51). Summations are equivalent to records at this site. Prior to March 1965, published as "below McRae Coulee".

GAGE.--Water-stage recorder. Datum of gage is 2,731.0 ft (832.41 m) above mean sea level (International Boundary Survey datum).

REMARKS.--Records good except those for periods of ice effect, which are poor. Natural flow affected by numerous storage reservoirs, diversions for irrigation of about 3,000 acres (12 km²) and return flow from irrigated area.

COOPERATION.--This is one of a number of stations which are maintained jointly by Canada and the United States.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,760 ft³/s (220 m³/s) June 14, 1962, gage height, 14.40 ft (4.389 m); no flow at times each season. Flood of June 14, 1962, is probably the highest since 1910.

EXTREMES FOR CURRENT SEASON.--Maximum discharge, 1,010 ft³/s (28.5 m³/s) Mar. 19, gage height, 8.47 ft (2.582 m), backwater from ice; no flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY 1979 TO DECEMBER 1979
MEAN VALUES

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1			.00	60	43	6.9	2.6	3.3	.00	.00		
2			.00	38	75	5.9	1.6	2.2	.00	.00		
3			.00	48	66	8.8	.95	1.3	.00	.00		
4			.00	42	58	15	1.3	1.2	.00	.00		
5			.00	33	50	8.7	1.5	.81	.00	.00		
6			.00	36	48	7.3	.92	.76	.00	.00		
7			.00	38	47	12	.64	6.9	.00	.00		
8			.00	63	76	11	.46	5.6	.00	.00		
9			.00	95	155	9.1	.32	4.9	.00	.00		
10			.00	303	122	6.1	.18	3.4	.00	.67		
11			.00	403	89	6.9	.11	2.2	.00	18		
12			.00	388	64	6.0	.07	1.3	.00	7.7		
13			.00	245	53	4.7	.04	.81	.00	4.0		
14			3.2	158	45	3.3	.04	.46	.00	2.2		
15			5.6	119	40	3.4	.00	.32	.00	1.5		
16			100	105	39	2.8	.00	.21	.00	.99		
17			250	125	41	2.5	.04	.11	.00	.67		
18			576	225	43	5.8	.00	.07	.00	.49		
19			672	386	39	4.6	.00	.04	.00	.42		
20			667	480	46	3.3	.00	.04	.00	.49		
21			501	276	43	2.5	.00	.04	.00	.39		
22			491	170	41	1.9	.00	.04	.00	4.6		
23			357	137	39	1.6	.00	.04	.00	20		
24			452	126	34	1.6	.00	.00	.00	12		
25			427	116	30	1.2	.00	.00	.00	5.5		
26			351	103	23	5.0	.00	.00	.00	3.0		
27			300	88	16	5.7	.04	.00	.00	1.9		
28			244	76	11	5.4	.04	.00	.00	1.3		
29			140	79	8.7	4.6	.04	.00	.00	.85		
30			94	91	7.4	3.8	.07	.00	.00	.64		
31			79	---	7.4	---	.67	.00	---	.49		
TOTAL			5913.80	4644	1554.5	169.4	11.63	36.07	.00	88.00		
MEAN			191	155	50.1	5.65	.38	1.16	.000	2.84		
MAX			672	480	155	15	2.6	6.9	.00	20		
MIN			.00	33	7.4	1.2	.00	.00	.00	.00		
AC-FT			11730	9210	3080	336	23	72	.00	175		

THE SEASON MARCH TO OCTOBER AC-FT 24,630

06145500 LODGE CREEK BELOW MCRAE CREEK, AT INTERNATIONAL BOUNDARY--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1977 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)
MAR												
18...	1230	565	390	7.0	2.0	130	60	31	12	29	1.1	8.0
APR												
02...	1630	49	273	7.5	1.0	76	21	18	7.5	18	.9	5.5
JUN												
20...	1030	3.4	629	8.4	18.0	210	46	43	24	58	1.8	9.6

DATE	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
MAR												
18...	67	110	3.8	.1	8.6	244	.33	372	.09	.15	90	250
APR												
02...	55	62	2.4	.1	6.3	155	.21	20.5	.06	.08	70	140
JUN												
20...	160	170	4.3	.2	4.8	410	.56	3.76	.00	.02	80	40

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
MAR												
18...	1230	3	0	0	0	10	0	130	.0	0	0	10
APR												
02...	1630	2	<1	2	0	11	<10	30	.0	0	0	20
JUN												
20...	1030	3	<1	<1	10	13	<10	20	.0	0	0	10

RESERVOIRS IN LODGE CREEK BASIN IN SASKATCHEWAN

(International gaging stations)

06144260 ALTAWAN RESERVOIR.--Lat 49°09'59", long 109°55'03", in NE¼SW¼ sec.35, T.2, R.30 W., third meridian, Hydrologic Unit 10050007, at dam on Lodge Creek, 6.3 mi (10.1 km) southwest of Govenlock. DRAINAGE AREA, 365 mi² (945 km²). PERIOD OF RECORD, February 1966 to current season. February 1960 to current season in reports of Department of the Environment, Canada. Seasonal records only. Water-stage recorder. Datum of gage is at mean sea level (PFRA datum). Prior to July 7, 1967, nonrecording gage in gate well read every ten days during irrigation season.

Reservoir is formed by earthfill dam with concrete spillway and control works as well as an emergency dirt spillway, completed in 1959. Total capacity is 5,830 acre-ft (7.19 hm³) between elevation 2,917.6 ft (889.28 m), bottom of outlet, and 2,952.5 ft (899.92 m), maximum design level. No dead storage. Elevation of top of dam, 2,960.0 ft (902.21 m); elevation of natural emergency spillway crest, 2,955.0 ft (900.68 m); and elevation of spillway crest, 2,949.0 ft (898.86 m). Figures given herein represent total contents. Water is used for irrigation. This is one of a number of stations which are maintained jointly by Canada and the United States.

EXTREMES FOR PERIOD OF RECORD: Maximum contents observed, 7,080 acre-ft (8.73 hm³) May 7, 1967, elevation, 2,955.37 ft (900.797 m), from highwater mark; no storage Mar. 1, 1960.

EXTREMES FOR CURRENT SEASON: Maximum contents, 6,530 acre-ft (8.05 hm³) Apr. 20, elevation, 2,954.14 ft (900.422 m); minimum, 2,370 acre-ft (2.92 hm³) Oct. 30, elevation, 2,942.46 ft (896.862 m).

06144360 MIDDLE CREEK RESERVOIR.--Lat 49°24'20", long 109°59'01", in NE¼ sec.21, T.5, R.30 W., third meridian, Hydrologic Unit 10050007, at dam on Middle Creek, 0.7 mi (1.1 km) east of Alberta-Saskatchewan boundary, 6.3 mi (10.1 km) west of Battle Creek, and 15 mi (24 km) northwest of Govenlock. DRAINAGE AREA, 130 mi² (337 km²). PERIOD OF RECORD, February 1966 to current season. Occasional nonrecording gage readings in 1937 and 1939-51, March 1952 to current season in reports of Department of the Environment, Canada. Seasonal records only. Water-stage recorder. Datum of gage is at mean sea level (PFRA datum). Prior to July 7, 1967, nonrecording gage in gate well read every ten days during irrigation season.

Reservoir is formed by earthfill dam with concrete control works and sod spillway at elevation 3,383.0 ft (1,031.14 m) on Middle Creek and at Ducks Unlimited outlet, constructed in 1937. Total capacity, 13,080 acre-ft (16.1 hm³) between elevation 3,368.60 ft (1,026.749 m), invert of outlet pipe on Middle Creek, and 3,383.0 ft (1,031.14 m), natural spillway. Invert of outlet pipe at Ducks Unlimited outlet is at elevation 3,372.04 ft (1,027.798 m). Figures given herein represent total contents. Water is used for irrigation and to maintain levels of Orleans Lakes. Water may be released to Lodge Creek via Ducks Unlimited outlet, Simms Lake and Walburger Coulee. Spillway does not return water to Middle Creek, may return to Lodge Creek via Walburger Coulee. This is one of a number of stations which are maintained jointly by Canada and the United States.

EXTREMES FOR PERIOD OF RECORD: Maximum contents observed, 23,080 acre-ft (28.5 hm³) Apr. 13, 1952, elevation, 3,387.92 ft (1,032.638 m); no storage at times.

EXTREMES FOR CURRENT SEASON: Maximum contents, 11,340 acre-ft (14.0 hm³) May 22, elevation, 3,381.61 ft (1,030.715 m); minimum 2,840 acre-ft (3.50 hm³) Mar. 1, elevation, 3,373.65 ft (1,208.289 m).

Monthend contents, in acre-feet, year October 1978 to October 1979

Date	Altawan Reservoir	Middle Creek Reservoir
Oct. 31	3,240	3,030
Nov. 30	-	-
Dec. 31	-	-
Jan. 31	-	-
Feb. 28	3,190	2,840
Mar. 31	5,930	6,230
Apr. 30	6,000	10,830
May 31	5,500	11,170
June 30	4,090	9,450
July 31	3,550	9,010
Aug. 31	2,960	8,290
Sept.30	2,840	7,990
Oct. 31	2,380	7,670

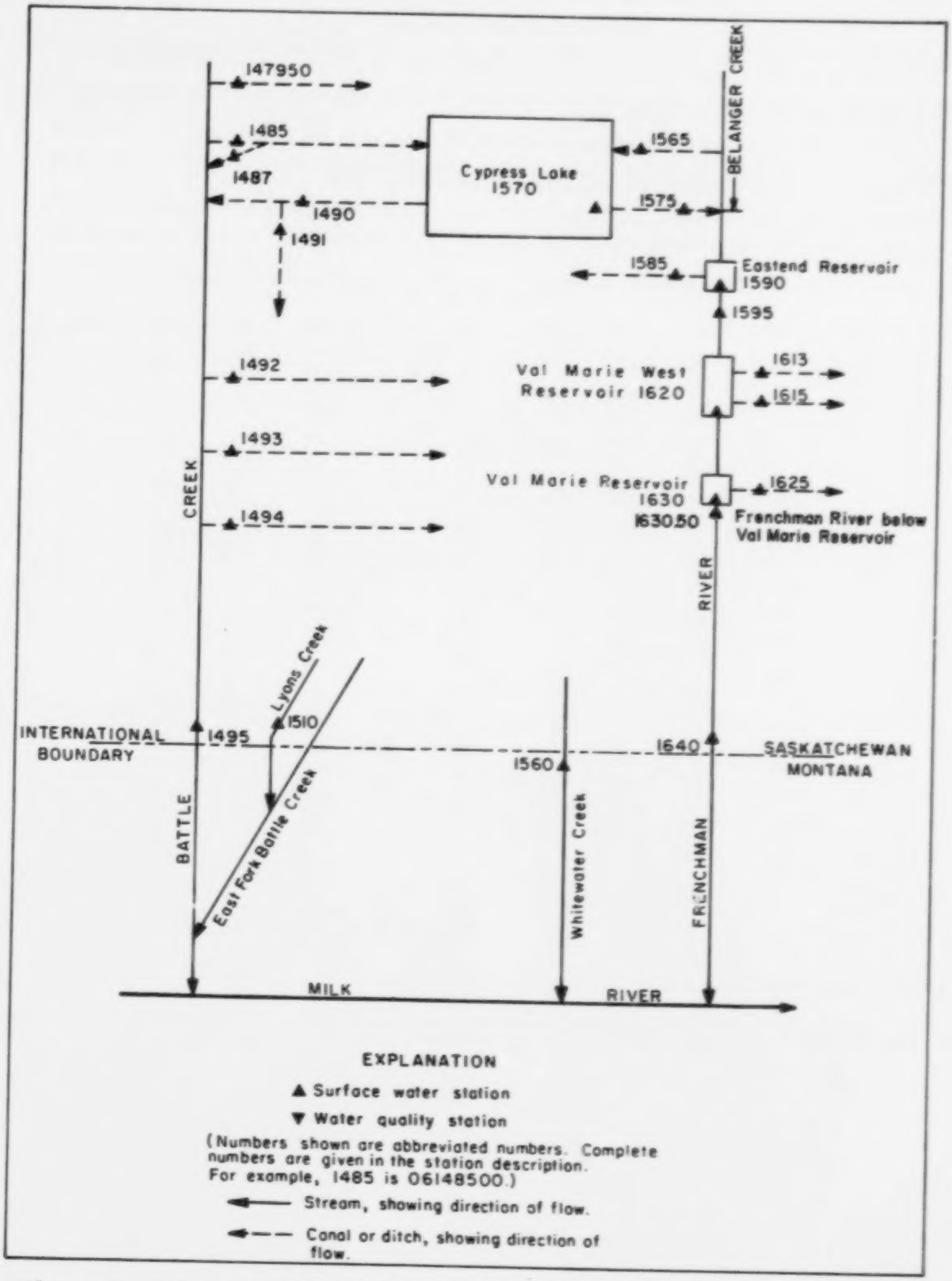

147950
1485
1487
1490
1491
1492
1493
1494
Cypress Lake
1570
1565
1575
BELANGER CREEK
Eastend Reservoir
1590
1585
1595
Val Marie West
Reservoir 1620
1613
1615
Val Marie Reservoir
1630
1625
163050
Frenchman River below
Val Marie Reservoir
BATTLE CREEK
FRENCHMAN RIVER
Lyons Creek
1510
East Fork Battle Creek
Whitewater Creek
INTERNATIONAL
BOUNDARY
1495
1560
1640
SASKATCHEWAN
MONTANA
MILK RIVER
EXPLANATION
▲ Surface water station
▼ Water quality station
(Numbers shown are abbreviated numbers. Complete numbers are given in the station description. For example, 1485 is 06148500.)
Stream, showing direction of flow.
Canal or ditch, showing direction of flow.

Figure 9. Schematic diagram showing diversions and storage in Battle Creek and Frenchman River basins in Canada.

06147950 GAFF DITCH NEAR MERRYFLAT, SASKATCHEWAN

(International gaging station)

LOCATION.--Lat 49°26'05", long 109°50'07", in NW¼ sec.34, T.5, R.29 W., third meridian, Hydrologic Unit 10050008, on left bank about 200 ft (61 m) downstream from headgates, and 4 mi (6 km) southwest of Merryflat.

PERIOD OF RECORD.--March 1972 to current season. March 1964 to current season in reports of Department of the Environment, Canada. Seasonal records only.

GAGE.--Water-stage recorder. Altitude of gage is 3,350 ft (1,020 m), from topographic map.

REMARKS.--Records good. Water is diverted from left bank of Battle Creek in NW¼ sec.34, T.5. R.29 W., third meridian, for irrigation of about 890 acres (3.6 km^2) along Battle Creek.

COOPERATION.--This is one of a number of stations which are maintained jointly by Canada and the United States.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 42 ft^3/s (1.19 m^3/s) Apr. 22, 1971; no flow at times each season.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY 1979 TO DECEMBER 1979
MEAN VALUES

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1			.00	.00	.00	15	16	.14	.11	.19		
2			.00	.00	4.7	14	19	.15	.12	.20		
3			.00	.00	13	19	14	.13	.12	.19		
4			.00	.00	7.6	19	10	.13	.11	.18		
5			.00	.00	2.3	19	.34	.13	.11	.16		
6			.00	.00	3.2	21	.33	.14	.11	.17		
7			.00	.00	3.9	23	.32	.14	.12	.15		
8			.00	.00	4.1	24	.31	.13	.12	.17		
9			.00	.00	3.8	23	.27	.12	.13	.16		
10			.00	.00	3.8	22	.18	.12	.13	.17		
11			.00	.00	1.1	21	.15	.11	.13	.15		
12			.00	.00	4.9	21	.13	.11	.13	.15		
13			.00	.00	16	20	.10	.10	.11	.14		
14			.00	.00	18	19	.10	.10	.11	.14		
15			.00	.00	17	17	.10	.12	.12	.14		
16			.00	.00	15	17	.10	.12	.09	.14		
17			.00	.00	15	17	.09	1.6	.08	.13		
18			.00	.00	16	17	.09	2.6	.09	.14		
19			.00	.00	17	20	.09	1.3	.09	.14		
20			.00	.00	19	20	.08	.14	.09	.14		
21			.00	.00	9.8	18	.09	.14	.10	.13		
22			.00	.00	3.6	17	.09	.12	.12	.12		
23			.00	.00	12	17	.10	.11	.14	.12		
24			.00	.00	11	16	.10	.12	.14	.10		
25			.00	.00	11	15	.13	.11	.14	.10		
26			.00	.00	10	14	.14	.11	.16	.11		
27			.00	.00	9.3	13	.14	.12	.16	.12		
28			.00	.00	13	13	.13	.12	.16	.11		
29			.00	.00	16	13	.14	.12	.16	.11		
30			.00	.00	16	13	.14	.12	.17	.10		
31			.00	---	15	---	.14	.11	---	.11		
TOTAL	---	---	.00	.00	312.10	537	63.12	8.93	3.67	4.40	---	---
MEAN	---	---	.000	.000	10.1	17.9	2.04	.29	.12	.14	---	---
MAX	---	---	.00	.00	19	24	19	2.6	.17	.20	---	---
MIN	---	---	.00	.00	.00	13	.08	.10	.08	.10	---	---
AC-FT	---	---	.00	.00	619	1070	125	18	7.3	8.7	---	---

THE SEASON MARCH TO OCTOBER AC-FT 1,840

NOTE.--Differences between figures published herein and corresponding figures in reports of the Water Survey of Canada are due to variations in automated program techniques.

06148500 CYPRESS LAKE WEST INFLOW CANAL NEAR WEST PLAINS, SASKATCHEWAN

(International gaging station)

LOCATION.--Lat 49°28'18", long 109°37'08", in SE¼ sec.18, T.6, R.27 W., third meridian, Hydrologic Unit 10050008, on left bank 2.5 mi (4.0 km) downstream from canal headgates, 5.5 mi (8.8 km) northeast of West Plains, and 13 mi (21 km) northwest of Consul.

PERIOD OF RECORD.--March 1939 to current season (seasonal records only). Monthly discharge only for some periods, published in WSP 1309.

GAGE.--Water-stage recorder. Altitude of gage is 3,210 ft (978 m), from topographic map. Prior to Oct. 16, 1956, at site 2.3 mi (3.7 km) upstream at different datum.

REMARKS.--Records good except those for periods of ice effect, which are poor. Canal diverts water from Battle Creek in NW¼ sec.1, T.6, R.28 W., third meridian, for storage in Cypress Lake. Part or all of flow may be returned to Battle Creek via wasteway and drain canal 0.4 mi (0.6 km) downstream.

COOPERATION.--This is one of a number of stations which are maintained jointly by Canada and the United States.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 884 ft³/s (25.0 m³/s) Apr. 27, 1965; no flow at times each season.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY 1979 TO DECEMBER 1979
MEAN VALUES

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1			.00	31	80	1.3	.00	.32	.00	.00		
2			.00	15	78	1.3	.00	.33	.00	.00		
3			.00	1.8	77	1.2	.00	11	.00	.00		
4			.00	1.1	61	1.1	.00	13	.00	.00		
5			.00	1.3	47	1.0	10	13	.00	.00		
6			.00	.19	50	.94	35	12	.00	.00		
7			.00	18	50	1.1	33	12	.00	.00		
8			.00	35	48	1.1	32	12	.00	.00		
9			.01	106	47	1.0	31	11	.00	.00		
10			.06	177	46	1.0	29	11	.00	.00		
11			.00	272	28	.99	27	11	.00	.00		
12			25	159	3.6	.85	20	10	.00	.00		
13			51	101	2.9	.75	17	8.0	.00	.00		
14			158	77	2.7	.71	20	1.9	.00	.00		
15			239	69	2.3	.72	22	.98	.00	.00		
16			218	83	13	.69	15	.81	.00	.00		
17			202	183	63	.69	.16	.66	.00	.00		
18			166	360	77	.58	.00	.62	.00	.00		
19			139	632	80	.73	.00	.55	.00	.00		
20			117	544	86	.55	.00	.41	2.6	.00		
21			106	199	124	.38	.00	.37	1.1	.00		
22			107	179	78	.30	.00	.43	1.0	.00		
23			91	113	35	.01	.00	.88	.91	.00		
24			82	91	35	.00	.02	.69	.84	.00		
25			75	86	36	.00	.16	.55	.67	.00		
26			69	75	34	.00	.22	.37	.50	.00		
27			62	88	2.4	.00	.13	.30	.36	.00		
28			52	116	1.4	.00	.04	.15	.28	.00		
29			41	115	1.4	.00	.05	.08	.10	.00		
30			40	103	1.3	.00	.29	.00	.00	.00		
31			35	---	1.3	---	.53	.01	---	.00		
TOTAL			2075.07	4031.39	1292.3	18.99	292.60	134.41	8.36	.00		
MEAN			66.9	134	41.7	.63	9.44	4.34	.28	.000		
MAX			239	632	124	1.3	35	13	2.6	.00		
MIN			.00	.19	1.3	.00	.00	.00	.00	.00		
AC-FT			4120	8000	2560	38	580	267	17	.00		

THE SEASON MARCH TO OCTOBER AC-FT 15,580

NOTE.--Differences between figures published herein and corresponding figures in reports of the Water Survey of Canada are due to variations in automated program techniques.

06148700 CYPRESS LAKE WEST INFLOW CANAL DRAIN NEAR OXARAT, SASKATCHEWAN

(International gaging station)

LOCATION.--Lat 49°28'26", long 109°36'41", in NW¼ sec.17, T.6, R.27 W., third meridian, Hydrologic Unit 10050008, on left bank about 500 ft (152 m) downstream from drain gate on Cypress Lake west inflow canal, 0.5 mi (0.8 km) upstream from Battle Creek, and 4 mi (6 km) northwest of Oxarat Post Office.

PERIOD OF RECORD.--March 1963 to current season. March 1955 to current season in reports of Department of the Environment, Canada. Seasonal records only.

GAGE.--Water-stage recorder. Altitude of gage is 3,200 ft (975 m), from topographic map.

REMARKS.--Records fair except those for periods of no gage height record, Mar. 1-8, Mar. 14 to May 31, Oct. 26-31, which are poor. Drain used as an emergency bypass to return diverted water to Battle Creek. It may also be used to return stored water from Cypress Lake when lake stage is high.

COOPERATION.--This is one of a number of stations which are maintained jointly by Canada and the United States.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 450 ft^3/s (12.7 m^3/s) Apr. 20, 1955; no flow at times each season.

CORRECTION.--In MT-78-1 the mean daily values table was published on a water year basis instead of a seasonal year, thus omitting October 1978. The October values are as follows:

1. . .	0.04	6. . .	0.03	11. . .	0.03	16. . .	0.03	21. . .	0.03	26. . .	0.03	31. . .	0
2. . .	.04	7. . .	.03	12. . .	.03	17. . .	.03	22. . .	.03	27. . .	.03		
3. . .	.04	8. . .	.03	13. . .	.03	18. . .	.03	23. . .	.03	28. . .	.03		
4. . .	.03	9. . .	.03	14. . .	.03	19. . .	.03	24. . .	.03	29. . .	.03		
5. . .	.03	10. . .	.03	15. . .	.03	20. . .	.03	25. . .	.03	30. . .	.03		

TOTAL 0.93 MEAN .030 MAX. 0.04 MIN. 0 AC-FT 1.8

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY 1979 TO DECEMBER 1979
MEAN VALUES

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1			.00	.00	.00	.03	.02	.03	.03	.01		
2			.00	.00	.00	.03	.02	.03	.04	.01		
3			.00	.00	.00	.03	.01	.07	.04	.00		
4			.00	.00	.00	.03	.02	.09	.05	.00		
5			.00	.00	.00	.03	.03	.09	.04	.00		
6			.00	.00	.00	.02	.06	.09	.05	.00		
7			.00	.00	.00	.02	.05	.09	.06	.00		
8			.00	.04	.04	.01	.03	.09	.07	.00		
9			.00	.04	.04	.01	.03	.10	.07	.00		
10			.00	.04	.04	.01	.03	.10	.08	.00		
11			.00	.04	.04	.01	.03	.10	.07	.00		
12			.04	.04	.04	.01	.03	.10	.06	.00		
13			.04	.04	.04	.01	.03	.11	.05	.00		
14			.53	.04	.04	.01	.03	.10	.05	.00		
15			1.1	.04	.04	.01	.03	.10	.03	.00		
16			.11	.04	.04	.01	.02	.08	.02	.00		
17			.11	.04	.04	.01	.03	.08	.01	.00		
18			.11	.04	.07	.02	.02	.07	.01	.00		
19			.07	.04	.07	.03	.02	.07	.01	.00		
20			.07	.04	.07	.02	.02	.08	.05	.00		
21			.07	.04	.07	.03	.02	.07	.03	.00		
22			.07	.04	.07	.03	.02	.07	.03	.00		
23			.04	.00	.07	.03	.02	.07	.03	.00		
24			.04	.00	.07	.03	.03	.06	.03	.00		
25			.04	.00	.07	.02	.03	.05	.03	.00		
26			.04	.00	.07	.02	.03	.04	.02	.00		
27			.00	.00	.07	.03	.03	.03	.02	.00		
28			.00	.00	.07	.03	.03	.03	.01	.00		
29			.00	.00	.07	.03	.03	.03	.01	.00		
30			.00	.00	.07	.03	.03	.03	.01	.00		
31			.00	---	.07	---	.02	.04	---	.00		
TOTAL	---	---	2.48	.60	1.38	.64	.85	2.19	1.11	.02	---	---
MEAN	---	---	.080	.020	.045	.021	.027	.071	.037	.001	---	---
MAX	---	---	1.1	.04	.07	.03	.06	.11	.08	.01	---	---
MIN	---	---	.00	.00	.00	.01	.01	.03	.01	.00	---	---
AC-FT	---	---	4.9	1.2	2.7	1.3	1.7	4.3	2.2	.04	---	---

THE SEASON MARCH TO OCTOBER AC-FT 18

NOTE.--Differences between figures published herein and corresponding figures in reports of the Water Survey of Canada are due to variations in automated program techniques.

06149000 CYPRESS LAKE WEST OUTFLOW CANAL NEAR WEST PLAINS, SASKATCHEWAN

(International gaging station)

LOCATION.--Lat 49°28'12", long 109°35'18", in SW¼ sec.16, T.6, R.27 W., third meridian, Hydrologic Unit 10050008, on left bank 1.1 mi (1.8 km) downstream from Cypress Lake West Dam, 6 mi (10 km) northeast of West Plains, and 12.6 mi (20.3 km) north of Consul.

PERIOD OF RECORD.--March 1940 to current season (seasonal records only). Monthly discharge only for some periods, published in WSP 1309.

GAGE.--Water-stage recorder. Altitude of gage is 3,180 ft (969 m), from topographic map. Prior to Sept. 18, 1952, at site 1 mi (2 km) upstream and 300 ft (91 m) downstream from Cypress Lake West Dam at different datum.

REMARKS.--Records good except those for periods of no gage height record, Mar. 1 to Apr. 23, Aug. 29 to Sept. 11, Oct. 26-31, which are poor. Canal diverts water from Cypress Lake in NW¼ sec.15, T.6, R.27 W., third meridian, for irrigation of 5,500 acres (22 km²) in Battle Creek basin in Saskatchewan. Water may be delivered to Battle Creek or diverted into Vidora Ditch at gate structure near lower end of canal.

COOPERATION.--This is one of a number of stations which are maintained jointly by Canada and the United States.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 304 ft³/s (8.61 m³/s) May 4, 1951; no flow at times each season.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY 1979 TO DECEMBER 1979
MEAN VALUES

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1			.00	.00	19	106	8.6	.61	.07	.00		
2			.00	.00	20	137	19	.22	.07	.01		
3			.00	.00	19	137	19	.15	.07	.01		
4			.00	.00	18	135	12	.19	.07	.01		
5			.00	.00	18	134	3.4	.14	.11	.01		
6			.00	.00	18	131	3.5	.22	.11	.01		
7			.00	.00	20	129	3.5	.31	.11	.01		
8			.00	.53	25	128	3.5	.15	.11	.02		
9			.00	1.1	25	126	2.8	.10	.11	.03		
10			.00	2.8	19	118	2.1	.12	.11	.03		
11			.00	3.5	15	94	2.1	.12	.11	.04		
12			.00	3.5	14	76	2.0	.12	.09	.04		
13			.00	18	14	28	1.9	.11	.08	.07		
14			.00	35	12	.87	1.9	.12	.07	.08		
15			.00	64	7.5	.71	1.9	.13	.06	.08		
16			.00	71	8.3	.56	37	.09	.03	.06		
17			.00	80	13	.41	70	.07	.03	.06		
18			.00	81	15	.31	91	.08	.02	.05		
19			.00	88	16	.38	152	.08	.02	.08		
20			.53	78	17	.44	166	.06	.01	.12		
21			1.1	53	19	.35	165	.06	.02	.12		
22			1.1	26	18	.30	159	.06	.01	.11		
23			1.4	28	15	.26	156	.05	.01	.11		
24			1.8	28	9.2	.21	146	.06	.01	.10		
25			1.1	29	5.7	.22	144	.07	.01	.11		
26			.35	28	5.6	.23	128	.07	.02	.11		
27			.00	29	5.6	.21	108	.07	.01	.11		
28			.00	28	5.6	.24	68	.06	.01	.11		
29			.00	25	30	3.1	46	.07	.01	.11		
30			.00	20	61	5.1	33	.07	.01	.11		
31			.00	---	62	---	16	.07	---	.11		
TOTAL			7.38	822.43	569.5	1492.90	1772.2	3.90	1.58	2.03		
MEAN			.24	27.4	18.4	49.8	57.2	.13	.053	.065		
MAX			1.8	88	62	137	166	.61	.11	.12		
MIN			.00	.00	5.6	.21	1.9	.05	.01	.00		
AC-FT			15	1630	1130	2960	3520	7.7	3.1	4.0		

THE SEASON MARCH TO OCTOBER AC-FT 9,270

NOTE.--Differences between figures published herein and corresponding figures in reports of the Water Survey of Canada are due to variations in automated program techniques.

06149100 VIDORA DITCH NEAR CONSUL, SASKATCHEWAN

(International gaging station)

LOCATION.--Lat 49°27'20", long 109°35'20", in SW¼ sec.9, T.6, R.27 W., third meridian, Hydrologic Unit 10050008, on left bank 0.5 mi (0.8 km) downstream from headgate near lower end of Cypress Lake west outflow canal and 11.7 mi (18.8 km) north of Consul.

PERIOD OF RECORD.--March 1963 to current season. March 1952 to current season in reports of Department of the Environment, Canada. Seasonal records only.

GAGE.--Water-stage recorder. Altitude of gage is 3,200 ft (975 m), from topographic map. Prior to Aug. 1, 1963, at datum 1.0 ft (0.31 m) higher.

REMARKS.--Records fair. No gage-height record Mar. 1 to May 21 and Sept. 12 to Oct. 31. Water may be delivered either to this canal or returned to Battle Creek from Cypress Lake. Canal diverts water from Cypress Lake west outflow canal in NE¼ sec.8, T.6, R.27 W., third meridian, for irrigation of about 2,140 acres (8.6 km²) in the Battle Creek basin.

COOPERATION.--This is one of a number of stations which are maintained jointly by Canada and the United States.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 97 ft³/s (2.75 m³/s) June 12, 13, 1975; no flow at times each season.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY 1979 TO DECEMBER 1979
MEAN VALUES

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1			.00	.00	.00	27	.00	.00	.00	.00		
2			.00	.00	.00	51	.00	.00	.00	.00		
3			.00	.00	.00	53	.00	.00	.00	.00		
4			.00	.00	.00	58	.00	.00	.00	.00		
5			.00	.00	.00	63	.00	.00	.00	.00		
6			.00	.00	.00	65	.00	.00	.00	.00		
7			.00	.00	.00	66	.00	.00	.00	.00		
8			.00	.00	.00	66	.00	.00	.00	.00		
9			.00	.00	.00	67	.00	.00	.00	.00		
10			.00	.00	.00	66	.00	.00	.00	.00		
11			.00	.00	.00	61	.00	.00	.00	.00		
12			.00	.00	.00	57	.00	.00	.00	.00		
13			.00	.00	.00	26	.00	.00	.00	.00		
14			.00	.00	.00	.00	.00	.00	.00	.00		
15			.00	.00	.00	.00	.00	.00	.00	.00		
16			.00	.00	.00	.00	31	.00	.00	.00		
17			.00	.00	.00	.00	52	.00	.00	.00		
18			.00	.00	.00	.00	52	.00	.00	.00		
19			.00	.00	.00	.00	51	.00	.00	.00		
20			.00	.00	.00	.00	53	.00	.00	.00		
21			.00	.00	.00	.00	58	.00	.00	.00		
22			.00	.00	.00	.00	59	.00	.00	.00		
23			.00	.00	.00	.00	60	.00	.00	.00		
24			.00	.00	.00	.00	49	.00	.00	.00		
25			.00	.00	.00	.00	49	.00	.00	.00		
26			.00	.00	.00	.00	48	.00	.00	.00		
27			.00	.00	.00	.00	50	.00	.00	.00		
28			.00	.00	.00	.00	47	.00	.00	.00		
29			.00	.00	.00	.00	40	.00	.00	.00		
30			.00	.00	.00	.00	27	.00	.00	.00		
31			.00	---	.00	---	11	.00	---	.00		
TOTAL			.00	.00	.00	726.00	737.00	.00	.00	.00		
MEAN			.000	.000	.000	24.2	23.8	.000	.000	.000		
MAX			.00	.00	.00	67	60	.00	.00	.00		
MIN			.00	.00	.00	.00	.00	.00	.00	.00		
AC-FT			.00	.00	.00	1440	1460	.00	.00	.00		

THE SEASON MARCH TO OCTOBER AC-FT 2,900

NOTE.--Differences between figures published herein and corresponding figures in reports of the Water Survey of Canada are due to variations in automated program techniques.

06149200 RICHARDSON DITCH NEAR CONSUL, SASKATCHEWAN

(International gaging station)

LOCATION.--Lat 49°21'49", long 109°32'14", near center of south line of sec.11, T.5, R.27 W., third meridian, Hydrologic Unit 10050008, on left bank 420 ft (128 m) downstream from headgate and 4.8 mi (7.7 km) north of Consul.

PERIOD OF RECORD.--March 1963 to current season. 1910-12, 1914, 1916-20, 1922-33, 1935, July 1946 to current season in reports of Department of the Environment, Canada. Seasonal records only. Estimates of seasonal diversion only in most seasons prior to 1946.

GAGE.--Water-stage recorder. Prior to June 26, 1949, nonrecording gages at different sites and datums. June 26, 1949, to Aug. 28, 1963, water-stage recorder at present site at datum 1.00 ft (0.305 m) higher.

REMARKS.--Records good except those for periods of no gage-height record, Mar. 1 to May 28, Sept. 12 to Oct. 31, which are poor. Ditch diverts from left bank of Battle Creek in SW¼ sec.11, T.5, R.27 W., third meridian, for irrigation of about 1,330 acres (5.3 km^2) along Battle Creek.

COOPERATION.--This is one of a number of stations which are maintained jointly by Canada and the United States.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 72 ft^3/s (2.04 m^3/s) June 15, 1974; no flow at times each season.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY 1979 TO DECEMBER 1979
MEAN VALUES

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1			.00	.00	.04	62	.04	.18	.11	.14		
2			.00	.00	.04	62	.05	.19	.13	.14		
3			.00	.00	.04	62	.08	.17	.12	.14		
4			.00	.00	.04	59	.12	.19	.13	.14		
5			.00	.00	.04	49	.11	.14	.13	.14		
6			.00	.00	.04	42	.11	.11	.12	.14		
7			.00	.00	.04	34	.10	.10	.13	.14		
8			.00	.00	.04	23	.10	.12	.14	.14		
9			.00	.00	.04	14	.10	.13	.15	.14		
10			.00	.00	.04	7.0	.11	.14	.16	.14		
11			.00	.00	.04	.28	.10	.15	.14	.14		
12			.00	.00	.04	.23	.09	.16	.14	.14		
13			.00	.00	.04	.32	.05	.17	.14	.14		
14			.00	.00	.04	.09	.05	.19	.14	.14		
15			.00	.00	.11	.03	.03	.10	.14	.14		
16			.00	.00	.11	.03	.03	.06	.14	.14		
17			.00	.00	.11	.05	.02	.03	.14	.14		
18			.00	.00	.11	.04	.03	.03	.14	.14		
19			.00	.00	.11	.05	32	.05	.14	.14		
20			.00	.00	.11	.05	43	.06	.14	.14		
21			.00	.00	.11	.05	42	.06	.14	.14		
22			.00	.00	.11	.05	42	.08	.14	.14		
23			.00	.00	.14	.07	42	.08	.14	.14		
24			.00	.00	.14	.07	42	.10	.14	.14		
25			.00	.00	.14	.06	42	.09	.14	.14		
26			.00	.00	.14	.03	41	.09	.14	.14		
27			.00	.00	.14	.03	32	.09	.14	.14		
28			.00	.00	.14	.06	19	.12	.14	.14		
29			.00	.00	47	.05	6.6	.13	.14	.14		
30			.00	.00	68	.05	.22	.11	.14	.14		
31			.00	---	61	---	.23	.12	---	.14		
TOTAL	---	---	.00	.00	178.28	415.69	385.37	3.54	4.12	4.34	---	---
MEAN	---	---	.000	.000	5.75	13.9	12.4	.11	.14	.14	---	---
MAX	---	---	.00	.00	68	62	43	.19	.16	.14	---	---
MIN	---	---	.00	.00	.04	.03	.02	.03	.11	.14	---	---
AC-FT	---	---	.00	.00	354	825	764	7.0	8.2	8.6	---	---

THE SEASON MARCH TO OCTOBER AC-FT 1,970

NOTE.--Differences between figures published herein and corresponding figures in reports of the Water Survey of Canada are due to variations in automated program techniques.

06149300 MCKINNON DITCH NEAR CONSUL, SASKATCHEWAN

(International gaging station)

LOCATION.--Lat 49°19'47", long 109°29'24", in NW¼ sec.30, T.4, R.26 W., third meridian, Hydrologic Unit 10050008, on right bank 1.0 mi (1.6 km) downstream from headgate on Battle Creek and 2.7 mi (4.3 km) northeast of Consul.

PERIOD OF RECORD.--March 1963 to current season. 1911-26, 1929-31, and March 1938 to current season in reports of Department of the Environment, Canada. Seasonal records only. Estimates of seasonal diversion only in many years prior to 1947.

GAGE.--Water-stage recorder. Prior to September 1949, nonrecording gages at various sites and datums. Sept. 4, 1949, to Aug. 29, 1963, water-stage recorder at present site at datum 1.00 ft (0.305 m) higher.

REMARKS.--Records fair except those for June 8-10, which are poor. No gage height record Mar. 1 to May 13 and Sept. 12 to Oct. 31. Ditch diverts from right bank of Battle Creek in NE¼ sec.30, T.4, R.26 W., third meridian, for irrigation of about 1,320 acres (5.3 km^2) along Battle Creek.

COOPERATION.--This is one of a number of stations which are maintained jointly by Canada and the United States.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 68 ft^3/s (1.93 m^3/s) June 18, 1975; no flow most of each season.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY 1979 TO DECEMBER 1979
MEAN VALUES

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1			.00	.00	.00	42	.00	.00	.00	.00		
2			.00	.00	.00	45	.00	.00	.00	.00		
3			.00	.00	.00	44	.00	.00	.00	.00		
4			.00	.00	.00	43	.00	.00	.00	.00		
5			.00	.00	.00	43	.00	.00	.00	.00		
6			.00	.00	.00	41	.00	.00	.00	.00		
7			.00	.00	.00	41	.00	.00	.00	.00		
8			.00	.00	.00	41	.00	.00	.00	.00		
9			.00	.00	.00	41	.00	.00	.00	.00		
10			.00	.00	.00	41	.00	.00	.00	.00		
11			.00	.00	.00	31	.00	.00	.00	.00		
12			.00	.00	.00	27	.00	.00	.00	.00		
13			.00	.00	.00	12	.00	.00	.00	.00		
14			.00	.00	.00	.00	.00	.00	.00	.00		
15			.00	.00	.00	.00	.00	.00	.00	.00		
16			.00	.00	.00	.00	.00	.00	.00	.00		
17			.00	.00	.00	.00	.00	.00	.00	.00		
18			.00	.00	.00	.00	.00	.00	.00	.00		
19			.00	.00	.00	.00	.00	.00	.00	.00		
20			.00	.00	.00	.00	26	.00	.00	.00		
21			.00	.00	.00	.00	37	.00	.00	.00		
22			.00	.00	.00	.00	37	.00	.00	.00		
23			.00	.00	.00	.00	37	.00	.00	.00		
24			.00	.00	.00	.00	37	.00	.00	.00		
25			.00	.00	.00	.00	37	.00	.00	.00		
26			.00	.00	.00	.00	37	.00	.00	.00		
27			.00	.00	.00	.00	33	.00	.00	.00		
28			.00	.00	.00	.00	13	.00	.00	.00		
29			.00	.00	.00	.00	6.1	.00	.00	.00		
30			.00	.00	23	.00	1.2	.00	.00	.00		
31			.00	---	37	---	.00	.00	---	.00		
TOTAL			.00	.00	60.00	492.00	301.30	.00	.00	.00		
MEAN			.000	.000	1.94	16.4	9.72	.000	.000	.000		
MAX			.00	.00	37	45	37	.00	.00	.00		
MIN			.00	.00	.00	.00	.00	.00	.00	.00		
AC-FT			.00	.00	119	976	598	.00	.00	.00		

THE SEASON MARCH TO OCTOBER AC-FT 1,690

NOTE.--Differences between figures published herein and corresponding figures in reports of the Water Survey of Canada are due to variations in automated program techniques.

06149400 NASHLYN CANAL NEAR CONSUL, SASKATCHEWAN

(International gaging station)

LOCATION.--Lat 49°13'57", long 109°33'27", in NE¼ sec.22, T.3, T.27 W., third meridian, Hydrologic Unit 10050008, on left bank 0.8 mi (1.3 km) downstream from headgate on Battle Creek, 5.9 mi (9.5 km) south of Consul.

PERIOD OF RECORD.--March 1963 to current season. 1912, 1914-35, 1938 to current season in reports of Department of the Environment, Canada. Seasonal records only. Prior to March 1950, estimates of seasonal diversion only in many seasons. Prior to Mar. 1, 1971, published as "Stirling and Nash Ditch".

GAGE.--Water-stage recorder. Prior to Sept. 21, 1949, water-stage recorder at present site or nonrecording gages at site 0.5 mi (0.8 km) downstream at different datums.

REMARKS.--Records fair. Ditch diverts water from left bank of Battle Creek in SW¼ sec.27, T.3, R.27 W., third meridian, for irrigation of about 1,880 acres (7.6 km^2) along Battle Creek.

COOPERATION.--This is one of a number of stations which are maintained jointly by Canada and the United States.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 85 ft^3/s (2.41 m^3/s) Apr. 14, 1952; no flow at times each season.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY 1979 TO DECEMBER 1979
MEAN VALUES

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1			.00	19	21	.63	.00	8.8	.00	.00		
2			.00	19	13	.01	.00	6.7	.00	.00		
3			.00	19	.68	.00	.00	5.8	.00	.00		
4			.00	19	.12	.00	.00	.11	.00	.00		
5			.00	19	.00	.00	.00	.00	.00	.00		
6			.00	14	.00	.00	.00	.00	.00	.00		
7			.00	14	.00	.00	.00	.00	.00	.00		
8			.00	15	.00	.00	.00	.00	.00	.00		
9			.00	15	.00	.00	.00	.00	.00	.00		
10			.00	15	.00	.00	.00	.00	.00	.00		
11			.00	15	.00	.00	.00	.00	.00	.00		
12			.00	16	.00	.00	.00	.00	.00	.00		
13			.11	23	.00	.00	.00	.00	.00	.00		
14			.48	26	.00	.00	.00	.00	.00	.00		
15			.40	25	.00	.00	.00	.00	.00	.00		
16			.46	25	.00	.00	.00	.00	.00	.00		
17			.49	31	.00	.00	.00	.00	.00	.00		
18			.37	34	.00	.00	.00	.00	.00	.00		
19			.42	35	.00	.00	.07	.00	.00	.00		
20			.39	33	.00	.00	5.0	.00	.00	.00		
21			.05	26	.00	.00	18	.00	.00	.00		
22			2.5	28	.00	.00	25	.00	.00	.00		
23			13	27	1.6	.00	27	.00	.00	.00		
24			16	26	30	.00	27	.00	.00	.00		
25			14	26	33	.00	26	.00	.00	.00		
26			19	24	33	.00	25	.00	.00	.00		
27			19	26	34	.00	19	.00	.00	.00		
28			19	26	34	.00	10	.00	.00	.00		
29			19	28	35	.00	9.8	.00	.00	.00		
30			19	24	28	.00	9.4	.00	.00	.00		
31			19	---	2.6	---	9.0	.00	---	.00		
TOTAL			162.67	696	266.00	.64	210.27	23.41	.00	.00		
MEAN			5.25	23.2	8.58	.021	6.78	.76	.000	.000		
MAX			19	35	35	.63	27	8.8	.00	.00		
MIN			.00	14	.00	.00	.00	.00	.00	.00		
AC-FT			323	1380	528	1.3	417	46	.00	.00		

THE SEASON MARCH TO OCTOBER AC-FT 2,700

NOTE.--Differences between figures published herein and corresponding figures in reports of the Water Survey of Canada are due to variations in automated program techniques.

06149500 BATTLE CREEK AT INTERNATIONAL BOUNDARY

(International gaging station)

LOCATION.--Lat 49°00'08", long 109°25'20", in SE¼ sec.4, T.1, R.26 W., third meridian, Hydrologic Unit 10050008, on left bank 600 ft (183 m) north of international boundary in Saskatchewan, 8 mi (13 km) upstream from Woodpile Coulee, and 30 mi (48 km) north of Chinook, Mt.

DRAINAGE AREA.--931 mi^2 (2,411 km^2).

PERIOD OF RECORD.--April 1917 to current season (seasonal records only most seasons). Monthly discharge only for March 1918 and March 1928, published in WSP 1309.

REVISED RECORDS.--WSP 1389: 1935(M), 1936, 1937-38(M). WSP 1729: 1924, 1926, 1932 (monthly figures only), drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,729.8 ft (832.04 m) above mean sea level (International Boundary Survey datum, adjustment of 1928).

REMARKS.--Records good. Natural flow of stream affected by storage reservoirs, diversions for irrigation of about 9,500 acres (38.4 km^2), and return flow from irrigated areas. Water may be diverted into or from Frenchman River basin through Cypress Lake.

COOPERATION.--This is one of a number of stations which are maintained jointly by Canada and the United States.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,820 ft^3/s (165 m^3/s) Apr. 15, 1952, gage height, 10.56 ft (3.219 m), reduced by overflow into Lodge Creek basin; no flow at times most season.

EXTREMES FOR CURRENT SEASON.--Maximum discharge, 629 ft^3/s (17.8 m^3/s) Mar. 23, gage height, 5.94 ft (1.810 m), backwater from ice; no flow Mar. 1-8.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY 1979 TO DECEMBER 1979
MEAN VALUES

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1			.00	82	77	19	7.3	35	1.4	1.5	13	
2			.00	82	73	17	7.7	26	1.5	1.4	12	
3			.00	65	72	23	8.0	23	1.6	.99	12	
4			.00	44	81	29	18	21	1.9	1.0	11	
5			.00	30	76	33	21	14	1.7	.92	---	
6			.00	42	83	39	29	11	2.0	1.1	---	
7			.00	83	75	44	47	14	2.0	1.4	---	
8			.00	108	81	41	39	11	1.9	1.8	---	
9			1.0	131	93	35	28	8.5	1.7	2.4	---	
10			2.0	174	114	48	18	6.9	2.4	2.7	---	
11			4.9	183	100	47	11	5.8	3.2	2.5	---	
12			9.9	166	87	38	8.6	4.7	3.2	2.5	---	
13			14	109	77	47	6.5	4.6	3.6	2.7	---	
14			21	52	111	43	5.8	4.6	3.6	3.4	---	
15			65	48	128	26	5.1	3.8	4.9	6.0	---	
16			170	47	126	29	4.7	3.2	5.3	7.2	---	
17			246	50	115	28	4.1	2.5	5.3	6.9	---	
18			280	66	109	19	3.6	3.8	4.6	7.3	---	
19			381	104	85	19	3.6	3.8	3.9	9.4	---	
20			434	104	68	17	2.9	2.8	3.9	11	---	
21			386	81	67	15	2.3	2.5	3.6	10	---	
22			420	109	64	14	1.9	2.0	3.2	11	---	
23			523	99	73	14	1.9	1.5	2.9	10	---	
24			473	100	42	13	1.8	1.4	3.1	11	---	
25			306	105	31	10	1.7	1.3	3.8	10	---	
26			156	159	40	8.6	1.8	1.2	3.2	10	---	
27			105	149	40	9.4	11	.99	3.1	10	---	
28			94	136	44	9.4	14	3.4	2.6	11	---	
29			71	147	29	8.5	19	2.9	2.4	11	---	
30			78	99	47	7.2	31	2.4	1.9	12	---	
31			86	---	42	---	41	1.8	---	12	---	
TOTAL			4326.80	2954	2340	750.1	406.3	231.19	89.4	192.61	---	
MEAN			140	98.5	75.5	25.0	13.1	7.46	2.98	6.21	---	
MAX			523	183	128	48	47	35	5.3	12	---	
MIN			.00	30	29	7.2	1.7	.99	1.4	.92	---	
AC-FT			8590	5860	4640	1490	806	459	177	382	---	

THE SEASON MARCH TO OCTOBER AC-FT 22,400

06151000 LYONS CREEK AT INTERNATIONAL BOUNDARY

(International gaging station)

LOCATION.--Lat 49°00'20", long 109°13'50", in SW¼ sec.1, T.1, R.25 W., third meridian, Hydrologic Unit 10050006, on right bank 0.3 mi (0.5 km) north of international boundary, 8 mi (13 km) south of Arena, Saskatchewan, and 28 mi (45 km) north of Chinook, Mt.

DRAINAGE AREA.--66.7 mi² (172.8 km²).

PERIOD OF RECORD.--March 1927 to current season (seasonal records only in most seasons). Monthly discharge only for February, March 1934, published in WSP 1309. Prior to March 1962, published as Lyons Coulee at international boundary.

REVISED RECORDS.--WSP 1389: 1929(M), 1936, 1937(M), 1939, 1940-41(M), 1946(M). WSP 1629: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 2,800 ft (853 m), from international boundary map. Prior to Oct. 19, 1935, nonrecording gages at site 0.5 mi (0.8 km) south of international boundary at different datum. Oct. 19, 1935, to Oct. 31, 1940, nonrecording gage at site 1.2 mi (1.9 km) north of international boundary at different datum. Nov. 1, 1940, to Aug. 4, 1958, nonrecording gages at sites within 300 ft (91 m) of present site at present datum.

REMARKS.--Records fair except those for winter period, which are poor. Natural flow of stream affected by small stock-water and irrigation dams above station.

COOPERATION.--This is one of a number of stations which are maintained jointly by Canada and the United States.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,200 ft³/s (34.0 m³/s) July 6, 1955, gage height, 8.38 ft (2.554 m), from floodmark, from rating curve extended above 600 ft³/s (17.0 m³/s); no flow most of each season.

EXTREMES FOR CURRENT SEASON.--Maximum discharge, 191 ft³/s (5.42 m³/s) Mar. 24, gage height, 3.95 ft (1.203 m); no flow on many days.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY 1979 TO DECEMBER 1979
MEAN VALUES

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1			.00	33	2.6	.00	.00	.00	.00	.00		
2			.00	15	2.3	.00	.00	.00	.00	.00		
3			.00	7.5	2.1	.00	.00	.00	.00	.00		
4			.00	5.0	1.9	.00	41	.00	.00	.00		
5			.00	3.5	1.8	.00	104	.00	.00	.00		
6			.00	2.9	1.9	.00	52	.00	.00	.00		
7			.00	10	1.9	.00	39	.00	.00	.00		
8			.00	28	1.7	.00	25	.00	.00	.00		
9			.00	34	1.5	.00	13	.00	.00	.00		
10			.00	28	1.3	.00	6.5	.00	.00	.00		
11			.00	24	1.2	.00	3.7	.00	.00	.00		
12			.00	14	1.1	.00	2.4	.00	.00	.00		
13			.00	9.4	1.1	.00	1.7	.00	.00	.00		
14			.00	5.5	1.0	.00	1.2	.00	.00	.00		
15			.00	4.3	.88	.00	1.1	.00	.00	.00		
16			.00	4.3	.78	.00	.81	.00	.00	.00		
17			2.7	6.0	.67	.00	.64	.00	.00	.00		
18			5.2	10	.60	.00	.53	.00	.00	.00		
19			8.1	24	.53	59	.34	.00	.00	.00		
20			31	22	.49	14	.19	.00	.00	.00		
21			56	12	.46	4.1	.00	.00	.00	.00		
22			69	6.9	.42	1.8	.00	.00	.00	.00		
23			83	5.9	.35	1.6	.00	.00	.00	.00		
24			121	5.6	.11	1.2	.00	.00	.00	.00		
25			117	8.5	.00	.92	.00	.00	.00	.00		
26			107	7.9	.00	.67	.00	.00	.00	.00		
27			52	5.9	.00	.49	.00	.00	.00	.00		
28			31	4.7	.00	.42	.00	.00	.00	.00		
29			22	3.8	.00	.11	.00	.00	.00	.00		
30			16	3.1	.00	.00	.00	.00	.00	.00		
31			38	---	.00	---	.00	.00	---	.00		
TOTAL			759.00	354.7	28.69	84.31	293.11	.00	.00	.00		
MEAN			24.5	11.8	.93	2.81	9.46	.000	.000	.000		
MAX			121	34	2.6	59	104	.00	.00	.00		
MIN			.00	2.9	.00	.00	.00	.00	.00	.00		
AC-FT			1510	704	57	167	581	.00	.00	.00		

THE SEASON MARCH TO OCTOBER AC-FT 2,980

06154400 PEOPLES CREEK NEAR HAYS, MT

LOCATION.--Lat 48°13'35", long 108°42'40", in SW¼ sec.35, T.29 N., R.23 E., Blaine County, Hydrologic Unit 10050009, on right bank 45 ft (14 m) downstream from bridge on State Highway 376, 2.5 mi (4.0 km) downstream from Myrtle Creek, and 16.4 mi (26.4 km) north of Hays.

DRAINAGE AREA.--220 mi² (570 km²).

PERIOD OF RECORD.--December 1966 to current year.

GAGE.--Water-stage recorder. Datum of gage is 2,714.10 ft (827.258 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair except those for winter period, which are poor. No gage-height record Jan. 13 to Mar. 2. Some storage in numerous stock ponds and diversions for irrigation of about 1,300 acres (5.26 km²) above station. Several observations of water temperature were made during the year and are available in files of Helena district office.

AVERAGE DISCHARGE.--12 years (water years, 1968-79), 21.0 ft³/s (0.595 m³/s), 15,210 acre-ft/yr (18.8 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,460 ft³/s (240 m³/s) June 8, 1972, gage height, 15.03 ft (4.581 m), from floodmark, from rating curve extended above 490 ft³/s (13.9 m³/s) on basis of slope-area measurement of peak flow; no flow at times most years.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 100 ft³/s (2.83 m³/s) and maximums (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 7	2300	*2,000	56.6	a*9.83	2.996	Apr. 19	1545	256	7.25	5.34	1.628
Apr. 7	2145	183	5.18	5.04	1.536	Apr. 26	0200	211	5.98	5.07	1.545

a--Backwater from ice.
No flow for part of Aug. 15, 16, and Sept. 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.6	9.5	7.0	4.5	3.5	8.0	42	165	44	6.4	3.5	2.4
2	9.3	9.3	7.5	5.0	3.0	8.0	37	160	43	6.7	2.0	2.2
3	10	9.4	8.0	5.0	4.0	7.5	36	155	42	9.7	1.5	2.1
4	9.6	8.9	8.5	4.5	5.0	8.0	35	150	38	11	.96	2.0
5	10	8.3	9.0	4.5	6.0	100	34	145	34	16	.67	1.7
6	10	7.5	8.5	5.0	6.0	300	35	140	30	12	.60	1.8
7	10	8.0	8.0	5.0	5.5	1000	97	135	32	13	.52	1.6
8	9.6	7.5	10	5.5	5.0	900	143	131	34	13	.51	1.3
9	10	7.0	12	6.0	5.0	800	147	120	34	11	.23	1.3
10	10	5.0	14	5.5	5.5	700	139	104	36	9.6	.15	1.2
11	10	5.5	15	5.0	5.5	800	130	93	33	8.6	.09	1.5
12	10	6.0	16	4.5	6.0	700	105	92	28	7.1	.08	2.4
13	10	6.5	16	4.0	6.0	600	85	93	22	5.7	.08	2.8
14	10	6.0	15	3.5	5.5	500	76	90	17	4.9	.10	2.6
15	10	5.0	15	4.0	4.5	450	75	87	15	4.9	.06	2.3
16	10	4.5	14	4.5	5.5	416	82	81	14	4.1	.04	2.1
17	9.9	5.0	14	5.5	6.5	340	108	78	15	3.6	.14	1.8
18	9.6	5.5	13	6.0	7.5	223	162	78	16	2.0	.67	1.7
19	9.7	6.0	13	6.5	8.0	153	241	77	13	1.3	.29	1.3
20	9.9	6.5	12	7.0	8.0	106	216	73	9.7	.91	.15	1.0
21	9.8	7.0	13	7.5	7.5	83	159	71	10	.73	.25	.82
22	10	7.5	12	6.5	7.5	81	138	65	10	.45	2.5	.54
23	9.3	8.0	11	5.5	7.0	81	133	61	12	.29	1.7	.45
24	8.6	8.5	10	6.5	7.5	81	149	56	14	.19	1.6	.24
25	9.4	9.0	9.0	7.0	8.0	91	155	53	15	.33	1.4	.19
26	9.9	8.5	8.0	6.5	8.5	61	190	47	14	.71	1.4	.13
27	9.7	8.5	7.0	6.0	8.5	53	185	46	12	1.7	2.5	.09
28	9.9	8.0	6.0	5.5	8.0	52	180	46	11	3.5	3.1	.06
29	9.9	6.0	5.0	5.0	---	47	175	46	9.7	4.0	2.7	.08
30	9.7	7.5	4.0	4.5	---	46	170	48	6.5	7.3	3.0	.07
31	9.6	---	4.0	4.0	---	47	---	44	---	5.3	2.4	---
TOTAL	303.0	217.4	324.5	165.5	174.0	8842.5	3659	2832	663.9	176.01	34.89	39.82
MEAN	9.77	7.25	10.5	5.34	6.21	285	122	91.4	22.1	5.68	1.13	1.33
MAX	10	9.5	16	7.5	8.5	1000	241	165	44	16	3.5	2.8
MIN	8.6	4.5	4.0	3.5	3.0	7.5	34	44	6.5	.19	.04	.06
AC-FT	601	431	644	328	345	17540	7260	5620	1320	349	69	79

CAL YR 1978 TOTAL 13736.32 MEAN 37.6 MAX 600 MIN .01 AC-FT 27250
WTR YR 1979 TOTAL 17432.52 MEAN 47.8 MAX 1000 MIN .04 AC-FT 34580

06154410 LITTLE PEOPLES CREEK NEAR HAYS, MT

LOCATION.--Lat 47°57'59", long 108°39'37", in SE¼SE¼NW¼ sec.32, T.26 N., R.24 E., Blaine County, Hydrologic Unit 10050009, on right bank 0.5 mi (0.8 km) upstream from entrance to Mission Canyon, and 2 mi (3 km) southeast of Hays.

DRAINAGE AREA.--11.8 mi² (30.6 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1972 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 3,760 ft (1,150 m), from topographic map. August 1972, to June 24, 1976, gage at present site at datum 10.00 ft (3.048 m) higher.

REMARKS.--Records fair except those Oct. 1 to Mar. 5, which are poor. No regulation or diversion above station. Several observations of water temperature were made during the year and are available in files of Helena district office.

AVERAGE DISCHARGE.--7 years, 6.61 ft³/s (0.187 m³/s), 4,790 acre-ft/yr (5.91 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 576 ft³/s (16.3 m³/s) May 25, 1974, gage height, 4.57 ft (1.393 m), from floodmark, at site and datum then in use, from rating curve extended above 44 ft³/s (1.25 m³/s) on basis of slope-area measurement of peak flow; minimum daily, 1.5 ft³/s (0.042 m³/s) Sept. 24-29, Dec. 9, 1977, Feb. 15, 1979.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 50 ft³/s (1.42 m³/s) and maximums (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Apr. 18	1800	58	1.64	11.63	3.545	May 6	1230	* 66	1.87	*11.76	3.584

Minimum daily discharge, 1.5 ft³/s (0.042 m³/s) Feb. 15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.7	3.9	3.2	2.5	2.2	2.4	6.2	35	11	4.4	3.2	2.7
2	3.7	3.9	3.2	2.5	2.1	2.3	5.9	33	11	4.4	3.2	2.7
3	3.8	3.7	3.4	2.4	1.9	2.1	5.9	30	10	4.2	3.2	2.7
4	3.8	3.7	3.4	2.3	1.9	2.0	5.6	30	9.2	4.2	3.2	2.7
5	3.9	3.7	3.0	2.3	2.0	2.0	5.5	31	9.2	4.2	3.2	2.7
6	3.9	3.7	2.6	2.4	2.0	2.1	6.2	58	8.5	4.4	3.2	2.7
7	4.0	3.7	2.8	2.5	1.7	2.4	7.4	54	8.5	4.4	3.2	2.7
8	4.1	3.7	3.0	2.7	1.7	2.5	7.4	44	8.1	4.4	3.2	2.7
9	4.2	3.7	3.4	2.6	1.8	2.5	8.9	38	7.4	4.2	3.4	2.7
10	4.3	3.7	3.4	2.5	1.7	2.5	12	36	7.1	4.2	3.4	2.7
11	4.4	3.5	3.4	2.5	1.7	2.5	12	35	6.8	4.6	3.4	2.5
12	4.5	3.7	3.2	2.5	1.7	2.7	12	33	6.5	4.6	3.4	2.5
13	4.6	3.7	3.2	2.3	1.9	2.8	12	33	6.5	4.4	3.4	2.5
14	4.6	3.7	3.0	2.1	1.7	3.0	12	33	6.2	4.2	3.2	2.5
15	4.5	3.7	3.0	2.1	1.5	3.2	14	34	5.9	4.4	3.2	2.5
16	4.4	3.9	3.0	2.3	1.7	3.5	20	36	5.6	4.2	3.2	2.5
17	4.3	3.9	2.8	2.7	1.9	3.7	41	32	5.6	3.9	3.2	2.5
18	4.2	3.2	2.8	2.7	2.1	3.9	54	28	5.6	3.9	3.0	2.5
19	4.2	3.4	2.8	2.5	2.1	4.2	49	25	5.4	3.7	3.0	2.5
20	4.2	3.2	3.0	2.5	2.1	4.6	39	23	5.4	3.7	3.0	2.5
21	4.2	3.0	3.0	2.4	2.1	4.6	33	22	5.1	3.5	2.8	2.4
22	4.2	3.4	3.0	2.4	2.1	4.6	29	20	4.9	3.4	2.8	2.4
23	4.2	3.5	3.0	2.5	2.4	4.9	26	18	4.6	3.4	2.8	2.4
24	4.2	3.5	3.0	2.5	2.4	5.1	24	17	4.6	3.4	2.8	2.4
25	4.4	3.4	2.8	2.5	2.4	5.9	25	16	4.6	3.5	2.8	2.4
26	4.2	3.4	2.8	2.5	2.5	6.5	32	15	4.6	3.7	2.7	2.4
27	4.2	3.5	2.8	2.4	2.5	6.5	31	15	4.6	3.7	2.7	2.4
28	4.2	3.5	2.7	2.4	2.5	6.5	35	14	4.4	3.5	2.7	2.4
29	4.2	3.5	2.5	2.4	---	6.5	37	13	4.4	3.4	2.7	2.4
30	3.9	3.4	2.3	2.4	---	6.2	36	12	4.4	3.4	2.7	2.4
31	3.9	---	2.3	2.4	---	6.2	---	11	---	3.4	2.7	---
TOTAL	129.1	107.4	92.0	75.7	56.3	120.4	644.0	874	195.7	122.9	94.6	76.0
MEAN	4.16	3.58	2.97	2.44	2.01	3.88	21.5	28.2	6.52	3.96	3.05	2.53
MAX	4.6	3.9	3.4	2.7	2.5	6.5	54	58	11	4.6	3.4	2.7
MIN	3.7	3.0	2.3	2.1	1.5	2.0	5.5	11	4.4	3.4	2.7	2.4
AC-FT	256	213	182	150	112	239	1280	1730	388	244	188	151

CAL YR 1978 TOTAL 2897.1 MEAN 7.94 MAX 97 MIN 1.6 AC-FT 5750
WTR YR 1979 TOTAL 2588.1 MEAN 7.09 MAX 58 MIN 1.5 AC-FT 5130

06154410 LITTLE PEOPLES CREEK NEAR HAYS, MT--Continued

WATER-QUALITY RECORDS.

PERIOD OF RECORD.--Water years 1977 to current year.

REVISIONS.--The concentrations of dissolved cadmium and dissolved lead for June 7, 1978 (1100 hours) and total recoverable cadmium and total recoverable lead for May 17 (1300 hours), Sept. 14, 1978 (1400 hours) were found in error and have been deleted.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)
DEC											
21...	1200	3.0	3	408	7.8	-4.5	4.5	11.0	99	<1	<1
MAR											
01...	1700	2.4	70	472	7.4	-9.0	.5	12.1	97	<1	<1
MAY											
08...	1300	45	2	318	7.9	4.5	5.0	10.8	97	--	--
17...	1030	31	3	--	--	7.0	6.0	--	--	<1	K2
JUL											
11...	1230	4.3	1	469	8.0	23.5	12.0	9.0	98	K5	K9
SEP											
12...	1215	2.6	2	460	8.4	12.5	9.0	10.0	98	K13	K11

DATE	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)
DEC											
21...	230	24	59	21	3.0	.1	1.8	210	32	1.5	.3
MAR											
01...	260	40	66	23	2.9	.1	1.5	220	31	.8	.3
MAY											
08...	150	11	39	13	3.2	.1	1.9	140	23	.5	.3
17...	--	--	--	--	--	--	--	--	--	--	--
JUL											
11...	230	29	57	21	3.3	.1	1.8	200	41	1.5	.4
SEP											
12...	230	9	57	21	2.6	.1	1.6	220	34	.8	.2

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, KJEL-DAHL, TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
DEC											
21...	10	255	.35	2.07	.06	.01	.10	.11	.02	30	0
MAR											
01...	9.8	268	.36	1.74	.06	.01	.03	.04	.02	70	10
MAY											
08...	12	177	.24	22.1	.01	.01	.00	.00	.03	30	20
17...	--	--	--	--	--	--	--	--	--	--	--
JUL											
11...	11	257	.35	2.98	.03	.00	.09	.09	.01	50	10
SEP											
12...	2.6	252	.34	1.77	.02	.01	.46	.47	.01	20	20

06154410 LITTLE PEOPLES CREEK NEAR HAYS, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)
DEC 21...	1200	3	2	0	<1	1	<1	20	0	4	1	810
MAR 01...	1700	4	3	0	10	1	1	10	0	6	4	70
MAY 08...	1300	1	1	0	<1	2	2	0	0	0	2	660
JUL 11...	1230	1	1	0	<1	1	2	0	0	8	0	140
SEP 12...	1215	3	2	10	<1	0	<1	20	10	2	1	0

DATE	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
DEC 21...	18	17	0	<1	.0	.0	4	0	1	1	20	<3
MAR 01...	6	3	0	10	.1	.2	2	3	1	1	20	10
MAY 08...	18	0	40	4	.3	.0	3	0	1	1	30	40
JUL 11...	17	2	0	8	.1	.0	10	2	1	0	30	10
SEP 12...	3	0	0	4	.0	.0	2	0	1	1	0	--

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPER-ATURE (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)
DEC 21...	1200	4.5	3.0	112	.91
MAR 01...	1700	.5	2.4	116	.75
MAY 08...	1300	5.0	46	45	5.6
JUL 11...	1230	12.0	4.3	18	.21
SEP 12...	1215	9.0	2.6	19	.13

06156000 WHITEWATER CREEK NEAR INTERNATIONAL BOUNDARY

(International gaging station)

LOCATION.--Lat 48°57'10", long 107°51'40", in NW¼ sec.24, T.37 N., R.29 E., Phillips County, Hydrologic Unit 10050011, on left bank 500 ft (152 m) downstream from North Fork, 3.3 mi (5.3 km) south of international boundary, 11 mi (18 km) north of Loring, Mt. and 14 mi (23 km) south of Orkney, Saskatchewan.

DRAINAGE AREA.--458 mi² (1,186 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1927 to October 1979 (discontinued). Seasonal records only in most seasons.

REVISED RECORDS.--WSP 1389: 1928, 1931(M), 1936, 1939-41(M), 1943, 1950(M). WSP 1729: Drainage area.

GAGE.--Water-stage recorder. V-Notch sharp-crested weir in concrete control since October 1938. Altitude of gage is 2,500 ft (762 m), from international boundary map. Prior to Aug. 31, 1927, nonrecording gage, and Aug. 31, 1927, to Aug. 31, 1948, water-stage recorder, at site 300 ft (91 m) upstream at present datum.

REMARKS.--Records good except those for winter periods, which are poor.

COOPERATION.--This is one of a number of stations which are maintained jointly by the United States and Canada.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,500 ft³/s (99.1 m³/s) Apr. 14, 1952, gage height, 6.15 ft (1.875 m), from rating curve extended above 2,100 ft³/s (59.5 m³/s) on basis of conveyance study; no flow at times most seasons.

EXTREMES FOR CURRENT SEASON.--Maximum discharge, 402 ft³/s (11.4 m³/s) Apr. 7, gage height, 3.56 ft (1.085 m); maximum gage height, 4.01 ft (1.222 m) Mar. 25 (backwater from ice); no flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY 1979 TO DECEMBER 1979
MEAN VALUES

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1			.00	4.7	2.6	.31	.06	.01	.02	.02		
2			.00	4.0	2.0	.28	.06	.01	.02	.03		
3			.00	3.2	1.5	.25	.04	.01	.02	.03		
4			.00	2.4	1.3	.20	.07	.01	.02	.04		
5			.00	2.0	1.4	.20	.11	.01	.02	.05		
6			.00	5.9	1.9	.16	.09	.01	.01	.07		
7			.00	104	3.9	.16	.07	.00	.02	.09		
8			.00	148	3.4	.16	.05	.00	.01	.13		
9			.00	80	2.5	.16	.04	.00	.02	.15		
10			.00	36	1.6	.15	.03	.00	.02	.16		
11			.00	26	1.3	.14	.02	.00	.04	.13		
12			4.4	19	1.1	.13	.02	.00	.04	.12		
13			6.8	38	1.1	.10	.02	.00	.03	.10		
14			4.1	10	1.0	.08	.02	.00	.02	.11		
15			4.6	9.7	.94	.07	.01	.00	.02	.12		
16			16	6.8	.81	.07	.01	.00	.02	.11		
17			11	8.4	.74	.08	.01	.00	.02	.11		
18			10	10	.71	.08	.01	.00	.01	.11		
19			36	11	.69	.10	.01	.00	.01	.13		
20			18	7.3	.63	.10	.00	.00	.01	.20		
21			29	4.8	.55	.09	.00	.00	.01	.18		
22			31	3.6	.50	.08	.00	.00	.02	.15		
23			110	6.5	.46	.07	.00	.00	.03	.15		
24			133	9.7	.43	.06	.00	.00	.04	.15		
25			230	9.0	.43	.05	.00	.00	.03	.15		
26			85	5.3	.39	.04	.01	.00	.03	.15		
27			42	5.3	.35	.04	.01	.00	.02	.14		
28			26	5.3	.31	.04	.01	.00	.02	.13		
29			10	4.4	.30	.04	.01	.00	.02	.13		
30			7.3	3.4	.28	.02	.02	.00	.02	.13		
31			6.1	---	.30	---	.02	.01	---	.13		
TOTAL			820.30	593.7	35.22	3.51	.83	.07	.64	3.60		
MEAN			26.5	19.8	1.14	.12	.027	.002	.021	.12		
MAX			230	148	3.9	.31	.11	.01	.04	.20		
MIN			.00	2.0	.28	.02	.00	.00	.01	.02		
AC-FT			1630	1180	70	7.0	1.6	.1	1.3	7.1		

THE SEASON MARCH TO OCTOBER AC-FT 2,880

06156000 WHITEWATER CREEK NEAR INTERNATIONAL BOUNDARY--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1977 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)
MAR 21...	1415	83	262	7.0	.0	69	18	15	7.6	20	1.1	9.2
APR 03...	1625	3.2	656	7.7	.0	160	0	32	20	74	2.5	13

DATE	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
MAR 21...	51	56	4.4	.1	8.5	153	.21	34.3	.29	.23	100	100
APR 03...	170	140	8.5	.2	14	405	.55	3.50	.23	.08	160	250

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
MAR 21...	1415	1	0	0	0	10	0	60	.0	0	0	10
APR 03...	1625	1	<1	2	0	<10	<10	100	.1	0	0	20

06156500 BELANGER CREEK DIVERSION CANAL NEAR VIDORA, SASKATCHEWAN

(International gaging station)

LOCATION.--Lat 49°29'39", long 109°21'50", in NW¼ sec.19, T.6, R.25 W., third meridian, Hydrologic Unit 10050013, on left bank 0.3 mi (0.5 km) downstream from diversion weir and 12 mi (19 km) north of Vidora.

PERIOD OF RECORD.--March 1946 to current season (seasonal records only). Monthly discharge only for some periods, published in WSP 1309.

GAGE.--Water-stage recorder. Altitude of gage is 3,200 ft (975 m), from Cypress Lake elevation.

REMARKS.--Records fair except those for periods of no gage height record, Mar. 1-17, 20-22, Mar. 25 to Apr. 5, which are poor. Canal diverts water from right bank of Belanger Creek in SW¼ sec.30, T.6, R.25 W., third meridian, for storage in Cypress Lake.

COOPERATION.--This is one of a number of stations which are maintained jointly by Canada and the United States.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 598 ft³/s (16.9 m³/s) May 7, 1975; no flow at times each season.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY 1979 TO DECEMBER 1979
MEAN VALUES

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1			.00	35	73	21	.00	.00	.00	.00		
2			.00	25	59	20	.00	.00	.00	.00		
3			.00	14	48	20	.00	.00	.00	.00		
4			.00	7.1	43	12	.00	.00	.00	.00		
5			.00	3.5	40	9.9	.00	.00	.00	.00		
6			.00	1.8	53	4.1	.00	.00	.00	.00		
7			.00	18	63	5.9	.00	.00	.00	.00		
8			.00	64	54	6.6	.00	.00	.00	.00		
9			.00	156	43	2.0	.00	.00	.00	.00		
10			.00	218	39	.00	.00	.00	.00	.00		
11			.00	111	40	.00	.00	.00	.00	.00		
12			.04	64	48	.00	.00	.00	.00	.00		
13			.07	87	51	.00	.00	.00	.00	.00		
14			.14	87	53	.00	.00	.00	.00	.00		
15			.11	95	50	.00	.00	.00	.00	.00		
16			.21	133	56	.00	.00	.00	.00	.00		
17			74	379	68	.00	.00	.00	.00	.00		
18			71	514	95	.00	.00	.00	.00	.00		
19			64	261	68	2.9	.00	.00	.00	.00		
20			60	217	53	2.2	.00	.00	.00	.00		
21			57	210	43	.69	.00	.00	.00	.00		
22			64	163	35	1.3	.00	.00	.00	.00		
23			85	127	32	.47	.00	.00	.00	.00		
24			81	96	29	.00	.00	.00	.00	.00		
25			71	76	29	.00	.00	.00	.00	.00		
26			64	89	27	.00	.00	.00	.00	.00		
27			74	108	25	.00	.00	.00	.00	.00		
28			64	112	25	.00	.00	.00	.00	.00		
29			57	96	23	.00	.00	.00	.00	.00		
30			49	82	22	.00	.00	.00	.00	.00		
31			42	---	21	---	.00	.00	---	.00		
TOTAL			977.57	3649.4	1408	109.06	.00	.00	.00	.00		
MEAN			31.5	122	45.4	3.64	.000	.000	.000	.000		
MAX			85	514	95	21	.00	.00	.00	.00		
MIN			.00	1.8	21	.00	.00	.00	.00	.00		
AC-FT			1940	7240	2790	216	.00	.00	.00	.00		

THE SEASON MARCH TO OCTOBER AC-FT 12,190

NOTE.--Differences between figures published herein and corresponding figures in reports of the Water Survey of Canada are due to variations in automated program techniques.

06157500 CYPRESS LAKE EAST OUTFLOW CANAL NEAR VIDORA, SASKATCHEWAN

(International gaging station)

LOCATION.--Lat 49°29'12", long 109°21'08", in SE¼ sec.19, T.6, R.25 W., third meridian, Hydrologic Unit 10050013, on right bank 500 ft (152 m) upstream from Belanger Creek and 12.3 mi (19.8 km) north of Vidora.

PERIOD OF RECORD.--April to October 1940, April 1943 to current season (seasonal records only). Monthly discharge only for some periods, published in WSP 1309.

GAGE.--Water-stage recorder. Altitude of gage is 3,180 ft (969 m), from topographic map. Prior to Sept. 26, 1946, at datum 2.24 ft (0.683 m) higher and Sept. 26, 1946, to May 18, 1950, at datum 1.54 ft (0.469 m) higher.

REMARKS.--Records fair except those for winter period and periods of no gage height record, Mar 1-11, Mar. 26 to Apr. 20, which are poor. Canal diverts water from Cypress Lake for irrigation in Frenchman River basin in Saskatchewan.

COOPERATION.--This is one of a number of stations which are maintained jointly by Canada and the United States.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 202 ft³/s (5.72 m³/s) Apr. 19, 1952; no flow at times most seasons.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY 1979 TO DECEMBER 1979
MEAN VALUES

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1		---	.49	.64	1.1	3.0	2.9	3.2	.43	.33	.81	
2		---	.49	.57	5.0	3.3	4.7	2.1	.38	.43	---	
3		---	.49	.57	6.1	3.4	7.2	1.8	.40	.63	---	
4		---	.60	.49	3.8	3.5	6.0	2.4	.53	.91	---	
5		---	.71	.49	2.5	4.0	4.8	2.3	.38	.98	---	
6		---	1.1	.57	2.5	3.5	2.2	2.1	.36	1.1	---	
7		---	1.4	.71	2.3	3.5	1.0	1.5	.36	1.0	---	
8		---	2.0	.88	3.9	3.7	1.1	1.0	.37	1.2	---	
9		---	2.1	1.1	5.6	4.1	1.7	.82	.43	1.2	---	
10		---	2.3	1.4	4.2	4.3	1.7	.76	.39	1.1	---	
11		---	2.5	1.6	2.9	3.9	1.6	.71	.69	1.0	---	
12		---	2.6	1.6	2.0	3.6	1.6	.66	.53	1.1	---	
13		---	2.8	1.8	1.4	3.5	1.5	.58	.47	1.4	---	
14		---	3.2	1.9	1.1	3.2	1.5	.52	.48	1.4	---	
15		---	3.5	2.1	.99	3.2	1.4	.59	.44	1.3	---	
16		---	3.9	2.5	.98	3.2	1.4	.64	.42	1.2	---	
17		---	3.2	2.5	1.6	3.2	1.3	.62	.36	.98	---	
18		---	2.8	2.1	.81	3.2	1.3	.52	.35	.83	---	
19		---	2.5	2.1	.73	3.4	1.3	.52	.30	.89	---	
20		---	2.8	1.9	.63	3.7	1.3	.60	.33	.98	---	
21		---	3.2	1.8	.52	4.0	4.0	.64	.35	1.0	---	
22		---	3.5	1.7	.45	4.7	14	.70	.37	1.0	---	
23		---	4.2	1.6	.50	5.5	12	.65	.34	.99	---	
24		---	3.2	1.6	1.1	5.8	10	.58	.35	.94	---	
25		---	3.2	1.8	1.3	5.1	8.6	.58	.33	.90	---	
26		---	2.5	1.5	1.5	4.3	8.4	.56	.33	1.0	---	
27		---	2.1	1.4	1.6	3.6	8.2	.52	.35	.99	---	
28		.49	1.8	1.3	1.7	3.3	6.5	.50	.36	1.1	---	
29		---	1.4	1.2	1.7	3.0	5.8	.46	.28	.99	---	
30		---	.99	1.2	2.1	2.9	5.7	.40	.31	.93	---	
31		---	.71	---	2.5	---	4.6	.41	---	.95	---	
TOTAL		---	68.28	42.62	65.11	112.6	135.5	29.96	11.77	30.75	---	
MEAN		---	2.20	1.42	2.10	3.75	4.37	.97	.39	.99	---	
MAX		---	4.2	2.5	6.1	5.8	14	3.2	.69	1.4	---	
MIN		---	.49	.49	.45	2.9	1.0	.40	.28	.33	---	
AC-FT		---	135	85	129	223	269	59	23	61	---	

THE SEASON MARCH TO OCTOBER AC-FT 985

NOTE.--Differences between figures published herein and corresponding figures in reports of the Water Survey of Canada are due to variations in automated program techniques.

06158500 EASTEND CANAL AT EASTEND, SASKATCHEWAN

(International gaging station)

LOCATION.--Lat 49°30'20", long 108°51'05", in NW¼ sec.25, T.6, R.22 W., third meridian, Hydrologic Unit 10050013, on left bank 100 ft (30 m) downstream from headgate and 1.5 mi (2.4 km) west of Eastend.

PERIOD OF RECORD.--March 1937 to current season (seasonal records only). Monthly discharge only for some periods, published in WSP 1309.

GAGE.--Water-stage recorder. Datum of gage is 2,999.24 ft (914.168 m) above mean sea level (Geodetic Surveys of Canada datum). Prior to Sept. 19, 1949, at sites within 1 mi (2 km) downstream at different datums.

REMARKS.--Records fair. No gage-height record Mar. 1 to May 1 and Sept. 13 to Oct. 31. Canal diverts water from Eastend Reservoir in NW¼ sec.25, T.6, R.22 W., third meridian, on right bank for irrigation of about 3,100 acres (12.5 km²) in the Frenchman River basin in Saskatchewan.

COOPERATION.--This is one of a number of stations which are maintained jointly by Canada and the United States.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 84 ft³/s (2.38 m³/s) May 18, 1976; no flow at times each season.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY 1979 TO DECEMBER 1979
MEAN VALUES

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1			.00	.00	.00	59	.00	61	.00	.00		
2			.00	.00	.00	60	.00	61	.00	.00		
3			.00	.00	.00	60	.00	58	.00	.00		
4			.00	.00	.00	60	.00	56	.00	.00		
5			.00	.00	.00	60	.00	55	.00	.00		
6			.00	.00	.00	60	.00	53	.00	.00		
7			.00	.00	.00	59	.00	53	.00	.00		
8			.00	.00	.00	55	.00	52	.00	.00		
9			.00	.00	.00	55	.00	49	.00	.00		
10			.00	.00	.00	55	.00	47	.00	.00		
11			.00	.00	.00	53	.00	44	.00	.00		
12			.00	.00	.00	47	.00	32	.00	.00		
13			.00	.00	.00	46	.00	27	.00	.00		
14			.00	.00	.00	46	.00	15	.00	.00		
15			.00	.00	.00	46	.00	.00	.00	.00		
16			.00	.00	.00	47	.00	.00	.00	.00		
17			.00	.00	.00	46	.00	.00	.00	.00		
18			.00	.00	.00	46	.00	.00	.00	.00		
19			.00	.00	.00	45	.00	.00	.00	.00		
20			.00	.00	.00	45	.00	.00	.00	.00		
21			.00	.00	.00	44	.00	.00	.00	.00		
22			.00	.00	.00	33	.00	.00	.00	.00		
23			.00	.00	.00	24	.00	.00	.00	.00		
24			.00	.00	.00	19	63	.00	.00	.00		
25			.00	.00	.00	19	67	.00	.00	.00		
26			.00	.00	.00	20	67	.00	.00	.00		
27			.00	.00	.00	.00	66	.00	.00	.00		
28			.00	.00	34	.00	65	.00	.00	.00		
29			.00	.00	52	.00	65	.00	.00	.00		
30			.00	.00	53	.00	64	.00	.00	.00		
31			.00	---	54	---	63	.00	---	.00		
TOTAL			.00	.00	193.00	1209.00	520.00	663.00	.00	.00		
MEAN			.000	.000	6.23	40.3	16.8	21.4	.000	.000		
MAX			.00	.00	54	60	67	61	.00	.00		
MIN			.00	.00	.00	.00	.00	.00	.00	.00		
AC-FT			.00	.00	383	2400	1030	1320	.00	.00		

THE SEASON MARCH TO OCTOBER AC-FT 5,130

NOTE.--Differences between figures herein and corresponding figures in reports of the Water Survey of Canada are due to variations in automated program techniques.

06159500 FRENCHMAN RIVER BELOW EASTEND RESERVOIR, NEAR EASTEND, SASKATCHEWAN

(International gaging station)

LOCATION.--Lat 49°30'54", long 108°50'16", in SE¼ sec.36, T.6, R.22 W., third meridian, Hydrologic Unit 10050013, on left bank 0.8 mi (1.3 km) west of Eastend, 1.7 mi (2.7 km) downstream from Eastend Reservoir, and 100 mi (161 km) upstream from international boundary.

DRAINAGE AREA.--637 mi² (1,650 km²), of which 159 mi² (412 km²) in Cypress Lake basin is generally noncontributing.

PERIOD OF RECORD.--April 1909 to October 1916, March 1918 to May 1931, September 1935, March to July 1936, and April 1939 to current season (seasonal records only). Monthly discharge only for some periods, published in WSP 1309. Published as "at East End" 1909-16. Records prior to April 1939, not equivalent owing to diversion in Eastend Canal since 1937.

REVISED RECORDS.--WSP 1729: 1919, 1941 (monthly figures only), drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 2,960 ft (902 m), from topographic map. Prior to July 1941, nonrecording gages at several sites within 1.5 mi (2.4 km) of present site at various datums.

REMARKS.--Records good except those for winter period, which are poor. Natural flow of stream affected by storage reservoirs, diversions for irrigation, and return flow from irrigated areas. Water may be diverted into or from Battle Creek basin through Cypress Lake.

COOPERATION.--This is one of a number of stations which are maintained jointly by Canada and the United States.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,500 ft³/s (326 m³/s) Apr. 16, 1952, gage height, 19.10 ft (5.822 m), from floodmark in gage house; no flow at times.

EXTREMES FOR CURRENT SEASON.--Maximum discharge, 3,400 ft³/s (96.3 m³/s) Apr. 19, gage height, 14.65 ft (4.465 m); minimum daily, 2.6 ft³/s (0.075 m³/s) Mar. 6.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY 1979 TO DECEMBER 1979
MEAN VALUES

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1		---	11	97	143	8.4	7.4	4.5	4.2	6.3		
2		---	8.5	110	128	8.3	7.7	4.5	4.3	6.5		
3		---	6.8	84	64	8.1	7.5	4.4	4.6	6.5		
4		---	5.8	62	63	7.9	7.4	4.4	4.7	6.5		
5		---	4.1	71	47	7.7	7.1	4.4	4.6	6.5		
6		---	2.7	52	38	7.4	7.3	4.3	4.6	6.6		
7		---	4.3	24	45	7.3	7.5	4.2	4.7	6.7		
8		---	7.5	25	59	7.3	7.2	4.2	4.7	7.2		
9		---	3.9	106	65	7.2	7.0	4.1	4.7	7.2		
10		---	2.7	380	60	7.1	6.8	3.9	5.0	7.5		
11		---	7.8	540	49	7.1	6.7	3.8	4.9	7.3		
12		---	85	287	49	7.0	6.4	3.7	5.0	7.6		
13		---	152	158	49	7.0	6.4	3.5	5.1	8.2		
14		---	173	86	49	6.8	6.0	3.3	5.1	8.9		
15		---	103	111	49	6.6	5.8	3.3	5.2	9.9		
16		---	99	196	48	6.5	5.9	3.3	5.3	11		
17		---	206	705	49	6.4	6.0	3.3	5.4	12		
18		---	202	2510	49	6.4	6.0	3.3	5.4	13		
19		---	200	2770	51	6.2	5.9	3.8	5.5	14		
20		---	230	1090	51	6.1	5.8	3.6	5.6	14		
21		---	256	703	51	6.3	5.7	3.6	5.7	15		
22		---	268	490	50	7.0	5.7	3.6	5.8	15		
23		---	232	349	39	6.9	5.6	3.7	6.2	16		
24		---	250	276	14	6.7	5.7	3.9	6.9	16		
25		---	338	178	9.3	6.6	5.6	3.9	6.5	18		
26		---	375	46	8.9	6.9	5.5	4.0	6.3	19		
27		---	185	12	8.9	6.8	5.5	4.1	6.2	20		
28		12	214	44	8.7	6.6	5.3	4.2	6.2	20		
29		---	203	197	8.6	7.0	5.1	4.2	6.1	19		
30		---	184	195	8.6	7.9	4.9	4.1	6.2	29		
31		---	146	---	8.5	---	4.7	4.2	---	39		
TOTAL		---	4166.1	11954	1420.5	211.5	193.1	121.3	160.7	399.4		
MEAN		---	134	398	45.8	7.05	6.23	3.91	5.36	12.9		
MAX		---	375	2770	143	8.4	7.7	4.5	6.9	39		
MIN		---	2.7	12	8.5	6.1	4.7	3.3	4.2	6.3		
AC-FT		---	8260	23710	2820	420	383	241	319	792		

THE SEASON MARCH TO OCTOBER AC-FT 36,950

NOTE.--Differences between figures published herein and corresponding figures in reports of the Water Survey of Canada are due to variations in automated program techniques.

06161300 VAL MARIE WEST PUMPING CANAL NEAR VAL MARIE, SASKATCHEWAN

(International gaging station)

LOCATION.--Lat 49°22'19", long 107°53'02", in NW¼ sec.7, T.5, R.14 W., third meridian, Hydrologic Unit 10050013, on right bank 50 ft (15 m) downstream from pump discharge outlet, 11 mi (18 km) northwest of Val Marie.

PERIOD OF RECORD.--March 1963 to current season. July 1950 to current season in reports of Department of the Environment, Canada. Seasonal records only.

GAGE.--Water-stage recorder. Prior to 1956 and subsequent to 1960, records obtained from occasional discharge measurements and records of pump operation.

REMARKS.--Records fair. No gage-height record Mar. 1 to May 7 and Oct. 30, 31. Canal diverts water from Val Marie West Reservoir for irrigation of about 2,100 acres (8.50 km^2) in the Frenchman River basin in Saskatchewan.

COOPERATION.--This is one of a number of stations which are maintained jointly by Canada and the United States.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 31 ft^3/s (0.88 m^3/s) May 30 to June 2, June 7-10, 1975, May 5, 6, 7, 9, 1977; no flow at times each season.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY 1979 TO DECEMBER 1979
MEAN VALUES

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1			.00	.00	.00	27	.00	28	.00	.00		
2			.00	.00	.00	27	.00	27	.00	.00		
3			.00	.00	.00	26	.00	26	.00	.00		
4			.00	.00	.00	27	.00	25	.00	.00		
5			.00	.00	.00	20	.00	14	.00	.00		
6			.00	.00	.00	15	.00	14	.00	.00		
7			.00	.00	.00	15	.00	14	.00	.00		
8			.00	.00	.00	14	.00	14	.00	.00		
9			.00	.00	.00	15	.00	.00	.00	.00		
10			.00	.00	.00	12	.00	.00	.00	.00		
11			.00	.00	.00	.00	.00	.00	.00	.00		
12			.00	.00	.00	.00	.00	.00	.00	.00		
13			.00	.00	.00	.00	.00	.00	.00	.00		
14			.00	.00	.00	14	.00	.00	.00	.00		
15			.00	.00	.00	15	.00	.00	.00	.00		
16			.00	.00	.00	13	.00	.00	.00	.00		
17			.00	.00	.00	.00	.00	.00	.00	.00		
18			.00	.00	.00	.00	20	.00	.00	.00		
19			.00	.00	.00	.00	26	.00	.00	.00		
20			.00	.00	.00	.00	26	.00	.00	.00		
21			.00	.00	.00	.00	26	.00	.00	.00		
22			.00	.00	.00	.00	27	.00	.00	.00		
23			.00	.00	.00	.00	27	.00	.00	.00		
24			.00	.00	12	.00	27	.00	.00	.00		
25			.00	.00	20	.00	25	.00	.00	.00		
26			.00	.00	28	.00	28	.00	.00	.00		
27			.00	.00	27	.00	28	.00	.00	.00		
28			.00	.00	27	.00	28	.00	.00	.00		
29			.00	.00	15	.00	27	.00	.00	.00		
30			.00	.00	27	.00	26	.00	.00	.00		
31			.00	---	26	---	26	.00	---	.00		
TOTAL			.00	.00	182.00	240.00	371.00	162.00	.00	.00		
MEAN			.000	.000	5.87	8.00	12.0	5.23	.000	.000		
MAX			.00	.00	28	27	28	28	.00	.00		
MIN			.00	.00	.00	.00	.00	.00	.00	.00		
AC-FT			.00	.00	361	476	736	321	.00	.00		

THE SEASON MARCH TO OCTOBER AC-FT 1,890

NOTE.--Differences between figures published herein and corresponding figures in reports of the Water Survey of Canada are due to variations in automated program techniques.

06161500 VAL MARIE WEST GRAVITY CANAL NEAR VAL MARIE, SASKATCHEWAN

(International gaging station)

LOCATION.--Lat 49°22'10", long 107°53'06", in SW¼ sec.7, T.5, R.14 W., third meridian, Hydrologic Unit 10050013, on right bank at outlet of Val Marie West Reservoir, 11 mi (18 km) northwest of Val Marie.

PERIOD OF RECORD.--March 1946 to current season (seasonal records only). Monthly figures only prior to March 1947, published in WSP 1309.

GAGE.--Water-stage recorder. Datum of gage is 2,662.88 ft (811.646 m) above mean sea level (Geodetic Survey of Canada datum). Prior to Sept. 27, 1949, at site 0.5 mi (0.8 km) downstream at different datum.

REMARKS.--Records fair. No gage-height record Mar. 1 to May 7 and Aug. 17 to Oct. 31. Canal diverts water from Val Marie West Reservoir for irrigation of about 1,900 acres (7.69 km²) in the Frenchman River basin in Saskatchewan. Since 1962, records have been based on gate openings in Val Marie West Dam.

COOPERATION.--This is one of a number of stations which are maintained jointly by Canada and the United States.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 55 ft³/s (1.56 m³/s) July 14, 1972; no flow at times each season.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY 1974 TO DECEMBER 1974
MEAN VALUES

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1			.00	.00	.00	38	.00	32	.00	.00		
2			.00	.00	.00	25	.00	31	.00	.00		
3			.00	.00	.00	11	.00	30	.00	.00		
4			.00	.00	.00	12	.00	29	.00	.00		
5			.00	.00	.00	16	.00	28	.00	.00		
6			.00	.00	.00	16	.00	25	.00	.00		
7			.00	.00	.00	16	.00	12	.00	.00		
8			.00	.00	.00	16	.00	7.1	.00	.00		
9			.00	.00	.00	18	.00	6.7	.00	.00		
10			.00	.00	.00	17	.00	6.7	.00	.00		
11			.00	.00	.00	7.4	.00	6.4	.00	.00		
12			.00	.00	.00	3.2	.00	6.4	.00	.00		
13			.00	.00	.00	2.8	.00	2.5	.00	.00		
14			.00	.00	.00	2.1	.00	.00	.00	.00		
15			.00	.00	.00	.00	.00	.00	.00	.00		
16			.00	.00	.00	.00	.00	.00	.00	.00		
17			.00	.00	.00	.00	2.6	.00	.00	.00		
18			.00	.00	.00	.00	16	.00	.00	.00		
19			.00	.00	.00	.00	19	.00	.00	.00		
20			.00	.00	.00	.00	27	.00	.00	.00		
21			.00	.00	.00	.00	32	.00	.00	.00		
22			.00	.00	6.4	.00	42	.00	.00	.00		
23			.00	.00	26	.00	48	.00	.00	.00		
24			.00	.00	27	.00	47	.00	.00	.00		
25			.00	.00	28	.00	46	.00	.00	.00		
26			.00	.00	31	.00	40	.00	.00	.00		
27			.00	.00	32	.00	37	.00	.00	.00		
28			.00	.00	33	.00	36	.00	.00	.00		
29			.00	.00	41	.00	35	.00	.00	.00		
30			.00	.00	45	.00	35	.00	.00	.00		
31			.00	---	45	---	34	.00	---	.00		
TOTAL	---	---	.00	.00	314.40	205.50	496.60	222.80	.00	.00	---	---
MEAN	---	---	.000	.000	10.1	6.95	16.0	7.19	.000	.000	---	---
MAX	---	---	.00	.00	45	38	48	32	.00	.00	---	---
MIN	---	---	.00	.00	.00	.00	.00	.00	.00	.00	---	---
AC-FT	---	---	.00	.00	624	414	985	442	.00	.00	---	---

THE SEASON MARCH TO OCTOBER AC-FT 2,460

NOTE.--Differences between figures published herein and corresponding figures in reports of the Water Survey of Canada are due to variations in automated program techniques.

06162500 VAL MARIE MAIN CANAL NEAR VAL MARIE, SASKATCHEWAN

(International gaging station)

LOCATION.--Lat 49°18'18", long 107°48'05", in NE¼ sec.15, T.4, R.14 W., third meridian, Hydrologic Unit 10050013, on right bank about 500 ft (152 m) downstream from Val Marie Reservoir and 5.4 mi (8.7 km) northwest of Val Marie.

PERIOD OF RECORD.--April 1937 to current season (seasonal records only). Prior to April 1947 monthly discharge only, published in WSP 1309. Prior to March 1962, published as Val Marie Canal near Val Marie.

GAGE.--Water-stage recorder. Datum of gage is 2,622.03 ft (799.195 m) above mean sea level (Geodetic Surveys of Canada datum). Prior to May 21, 1963, at several sites within 2 mi (3 km) of present site at different datums.

REMARKS.--Records fair. No gage-height record Mar. 1 to May 7, June 1-7, and Aug. 17 to Oct. 31. Canal diverts water from Val Marie Reservoir for irrigation of about 4,700 acres (19.0 km²) in the Frenchman River basin in Saskatchewan.

COOPERATION.--This is one of a number of stations which are maintained jointly by Canada and the United States.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 122 ft³/s (3.46 m³/s) May 26, 27, 1976; no flow at times each season.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY 1979 TO DECEMBER 1979
MEAN VALUES

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1			.00	.00	.00	113	.00	106	.00	.00		
2			.00	.00	.00	113	.00	104	.00	.00		
3			.00	.00	.00	107	.00	99	.00	.00		
4			.00	.00	.00	95	.00	96	.00	.00		
5			.00	.00	.00	90	.00	44	.00	.00		
6			.00	.00	.00	72	.00	22	.00	.00		
7			.00	.00	.00	71	.00	20	.00	.00		
8			.00	.00	.00	76	.00	16	.00	.00		
9			.00	.00	.00	82	.00	4.9	.00	.00		
10			.00	.00	.00	83	.00	.00	.00	.00		
11			.00	.00	.00	79	.00	.00	.00	.00		
12			.00	.00	.00	62	.00	.00	.00	.00		
13			.00	.00	.00	33	.00	.00	.00	.00		
14			.00	.00	.00	14	.00	.00	.00	.00		
15			.00	.00	.00	2.1	.00	.00	.00	.00		
16			.00	.00	.00	.00	.00	.00	.00	.00		
17			.00	.00	.00	.00	.00	.00	.00	.00		
18			.00	.00	.00	.00	.00	.00	.00	.00		
19			.00	.00	.00	.00	.00	.00	.00	.00		
20			.00	.00	.00	.00	49	.00	.00	.00		
21			.00	.00	.00	.00	53	.00	.00	.00		
22			.00	.00	.00	.00	52	.00	.00	.00		
23			.00	.00	.00	.00	76	.00	.00	.00		
24			.00	.00	.00	.00	90	.00	.00	.00		
25			.00	.00	81	.00	107	.00	.00	.00		
26			.00	.00	72	.00	114	.00	.00	.00		
27			.00	.00	46	.00	115	.00	.00	.00		
28			.00	.00	106	.00	114	.00	.00	.00		
29			.00	.00	105	.00	113	.00	.00	.00		
30			.00	.00	99	.00	111	.00	.00	.00		
31			.00	---	108	---	109	.00	---	.00		
TOTAL	---	---	.00	.00	627.00	1092.10	1103.00	507.90	.00	.00	---	---
MEAN	---	---	.000	.000	20.2	36.4	35.6	16.4	.000	.000	---	---
MAX	---	---	.00	.00	108	113	115	108	.00	.00	---	---
MIN	---	---	.00	.00	.00	.00	.00	.00	.00	.00	---	---
AC-FT	---	---	.00	.00	1240	2170	2190	1010	.00	.00	---	---

NOTE.--Differences between figures published herein and corresponding figures in reports of the Water Survey of Canada are due to variations in automated program techniques.

06163050 FRENCHMAN RIVER BELOW VAL MARIE RESERVOIR, NEAR VAL MARIE, SASKATCHEWAN

(International gaging station)

LOCATION.--Lat 49°18'08", long 107°48'23", in NW¼ sec.15, T.4, R.14 W., third meridian, Hydrologic Unit 10050013, on left bank about 200 ft (61 m) downstream from spillway for Val Marie Reservoir, about 7 mi (11 km) northwest of Val Marie.

DRAINAGE AREA.--1,460 mi² (3,780 km²).

PERIOD OF RECORD.--May 1976 to current season. Seasonal records only. Operated as a low-flow seasonal station May 1976 to October 1976. June to October 1939, July to October 1965, and May 1966 to current season in reports of Department of the Environment, Canada.

GAGE.--Water-stage recorder. Datum of gage is 2,606.11 ft (794.342 m) above mean sea level (Geodetic Survey of Canada datum).

REMARKS.--Records fair. Natural flow of stream affected by storage reservoirs, diversions for irrigation, and return flow from irrigated areas. Water may be diverted into or from Battle Creek basin through Cypress Lake.

COOPERATION.--This is one of a number of stations which are maintained jointly by Canada and the United States.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,350 ft³/s (66.6 m³/s) Apr. 19, 1979, gage height, 12.87 ft (3.923 m); minimum 0.71 ft³/s (0.020 m³/s) Aug. 26, 1978, gage height, 1.97 ft (0.599 m).

EXTREMES FOR CURRENT SEASON.--Maximum discharge, 2,350 ft³/s (66.6 m³/s) Apr. 19, gage height, 12.87 ft (3.923 m); minimum, 1.2 ft³/s (0.034 m³/s) Aug. 18, gage height, 2.08 ft (0.634 m); minimum gage height, 1.98 ft (0.602 m) June 22.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY 1979 TO DECEMBER 1979
MEAN VALUES

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1			10	267	66	3.0	2.4	1.8	6.0	5.9		
2			10	253	35	2.6	2.2	1.7	5.5	6.5		
3			9.9	219	10	2.4	2.3	1.7	5.0	6.3		
4			9.7	216	7.2	2.0	2.8	1.6	6.1	6.2		
5			9.6	214	66	2.5	3.0	1.6	5.7	6.0		
6			9.5	214	111	2.2	3.0	1.6	8.5	5.8		
7			9.4	139	111	1.5	3.1	1.5	8.3	5.7		
8			9.2	102	112	1.7	3.2	1.5	8.0	5.2		
9			9.1	108	113	1.7	3.3	1.8	8.2	4.7		
10			9.0	120	114	1.8	3.7	1.4	7.9	5.6		
11			8.8	150	115	1.7	3.8	1.4	14	4.7		
12			8.8	1210	114	1.8	4.0	1.6	28	3.9		
13			8.4	1100	113	2.0	3.9	1.3	27	3.6		
14			8.4	8.9	113	1.6	3.7	1.3	27	3.5		
15			8.5	20	100	1.5	2.4	1.2	26	3.7		
16			8.3	103	102	1.5	2.2	1.4	26	3.6		
17			8.3	184	100	1.6	2.2	1.3	26	3.7		
18			8.7	442	100	1.6	2.2	1.2	26	3.5		
19			8.7	1570	99	1.5	2.2	1.2	26	3.5		
20			9.2	1810	99	1.4	2.1	1.3	26	3.9		
21			11	1730	99	1.4	2.1	1.4	17	3.4		
22			14	1710	99	1.4	2.3	1.4	1.8	3.2		
23			53	1700	99	1.4	2.6	1.4	4.7	3.2		
24			154	810	98	1.4	2.5	1.7	6.3	3.2		
25			159	35	45	1.5	2.4	3.1	7.2	3.2		
26			166	108	3.3	1.7	2.6	3.3	7.5	3.2		
27			204	113	3.7	2.1	2.5	3.4	7.2	3.1		
28			281	113	3.4	2.3	2.2	4.2	7.4	3.0		
29			291	114	3.0	2.4	2.2	4.4	6.6	3.2		
30			281	106	3.1	2.3	2.1	4.6	5.9	3.2		
31			271	---	3.1	---	2.0	6.0	---	3.2		
TOTAL	---	---	2066.5	14990.9	2261.8	55.5	83.2	64.3	392.8	130.6	---	---
MEAN	---	---	66.7	500	73.0	1.85	2.68	2.07	13.1	4.21	---	---
MAX	---	---	291	1810	115	3.0	4.0	6.0	28	6.5	---	---
MIN	---	---	8.3	8.9	3.0	1.4	2.0	1.2	1.8	3.0	---	---
AC-FT	---	---	4100	29730	4490	110	165	128	779	259	---	---

THE SEASON MARCH TO OCTOBER AC-FT 39,760

NOTE.--Differences between figures published herein and corresponding figures in reports of the Water Survey of Canada are due to variations in automated program techniques.

06164000 FRENCHMAN RIVER AT INTERNATIONAL BOUNDARY

(International gaging station)

LOCATION.--Lat 49°00'01", long 107°18'04", in SE¼ sec.5, T.1, R.10 W., third meridian, Hydrologic Unit 10050013, on left bank 50 ft (15 m) north of international boundary and 22 mi (35 km) northeast of Whitewater, Mt.

DRAINAGE AREA.--2,299 mi² (5,954 km²).

PERIOD OF RECORD.--April 1917 to current season (seasonal records only for most seasons).

REVISED RECORDS.--WSP 1389: 1938(M), 1939-41, 1942(M), 1943, 1950(M). WSP 1729: Drainage area.

GAGE.--Water-stage recorder and concrete control since August 1949. Altitude of gage is 2,420 ft (738 m), from topographic map. Prior to June 23, 1937, water-stage recorder at site 0.5 mi (0.8 km) upstream at different datum. June 23, 1937, to October 1952, water-stage recorder at site 100 ft (30 m) downstream at present datum.

REMARKS.--Records good except those for winter period, which are fair. Natural flow of stream affected by several storage reservoirs, diversions for irrigation of about 14,500 acres (58.7 km²), and return flow from irrigated areas. Water may be diverted into or from Battle Creek basin through Cypress Lake.

COOPERATION.--This is one of a number of stations which are maintained jointly by Canada and the United States.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22,700 ft³/s (643 m³/s) Apr. 15, 1952, gage height, 19.90 ft (6.066 m), from floodmark, from rating curve extended above 2,300 ft³/s (65.1 m³/s) on basis of slope-area measurement of peak flow; no flow at times most seasons.

EXTREMES FOR CURRENT SEASON.--Maximum discharge, 1,630 ft³/s (46.2 m³/s) Apr. 27, gage height, 10.50 ft (3.201 m); no flow Aug. 22 to Sept. 17, Oct. 4-31.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY 1979 TO DECEMBER 1979
MEAN VALUES

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1			7.1	210	187	53	1.3	47	.00	.64		
2			7.1	238	174	62	1.0	45	.00	.42		
3			7.1	276	129	66	1.0	45	.00	.18		
4			7.1	291	98	64	2.1	42	.00	.00		
5			7.1	280	69	61	330	41	.00	.00		
6			7.1	251	79	64	572	38	.00	.00		
7			7.1	189	186	63	360	44	.00	.00		
8			7.1	254	238	52	203	36	.00	.00		
9			7.1	491	218	47	59	26	.00	.00		
10			7.1	689	193	44	32	16	.00	.00		
11			7.1	869	186	49	21	10	.00	.00		
12			8.0	1030	162	47	14	7.9	.00	.00		
13			8.0	911	156	45	8.7	6.0	.00	.00		
14			8.1	915	146	45	6.8	4.3	.00	.00		
15			35	696	140	40	5.4	2.8	.00	.00		
16			58	766	132	30	4.6	2.0	.00	.00		
17			57	819	116	23	3.6	1.5	.00	.00		
18			58	839	123	14	2.6	1.1	13	.00		
19			66	1090	123	8.7	1.7	.81	18	.00		
20			64	1050	119	7.3	1.9	.56	18	.00		
21			63	918	118	6.0	1.6	.21	18	.00		
22			64	997	116	5.2	1.3	.00	19	.00		
23			75	957	116	4.8	1.6	.00	19	.00		
24			95	1120	116	3.6	1.8	.00	18	.00		
25			76	1340	116	2.5	3.5	.00	14	.00		
26			77	1550	115	2.2	21	.00	8.4	.00		
27			108	1610	87	1.8	26	.00	5.8	.00		
28			149	1330	44	1.9	38	.00	2.4	.00		
29			205	424	35	1.6	42	.00	1.3	.00		
30			195	225	45	1.3	45	.00	.92	.00		
31			168	---	51	---	49	.00	---	.00		
TOTAL			1715.2	22625	3935	915.9	1862.5	417.18	155.82	1.24		
MEAN			55.3	754	127	30.5	60.1	13.5	5.19	.040		
MAX			205	1610	238	66	572	47	19	.64		
MIN			7.1	189	35	1.3	1.0	.00	.00	.00		
AC-FT			3400	44880	7810	1820	3690	827	309	2.5		

THE SEASON MARCH TO OCTOBER AC-FT 62,730

NOTE.--Differences between figures published herein and corresponding figures of the Water Survey of Canada are due to variations in automated program techinques.

RESERVOIRS IN FRENCHMAN RIVER BASIN IN SASKATCHEWAN

(International gaging stations)

06157000 CYPRESS LAKE.--Lat 49°28'51", long 109°23'44", in SE¼ sec.23, T.6, R.26 W., third meridian, Hydrologic Unit 10050013, at east dam, 10.6 mi (17.1 km) north of Vidora. DRAINAGE AREA, 159 mi^2 (412 km^2). PERIOD OF RECORD, February 1939 to current season (seasonal records only). Records prior to October 1946, published only in WSP 1309. March to May 1952 daily elevations and contents, published in WSP 1260-B. Water-stage recorder at east dam. Datum of gage is at mean sea level (Canadian Geodetic Survey datum; subtract 33.67 ft or 10.263 m to obtain Reclamation Service datum). Prior to 1969 season, at Reclamation Service datum. Prior to 1940, nonrecording gage on natural lake at "South" station. February 1940 to Apr. 28, 1955, elevation obtained from average of nonrecording gage readings at west and east dams.

This is an offstream reservoir formed by two earthfill dams on a natural lake of the same name which was, at one time, the head of the Frenchman River. There are concrete control works at both dams. The following capacity figures are from capacity table effective February 1970; see previous reports for superseded figures. Total capacity, 105,300 acre-ft (130 hm^3) between elevation 3,187.17 ft (971.449 m), bottom of outlet works, and 3,202.17 ft (976.021 m), maximum design level. Dead storage, 25,130 acre-ft (31.0 hm^3) below elevation 3,187.17 ft (971.449 m). Water is diverted from Battle Creek on west, 12 mi (19 km) northwest of Consul, and from Belanger Creek, head of Frenchman River, on the east, 12 mi (19 km) north of Vidora. Water is released to the same streams for irrigation. Figures given herein represent total contents. This is one of a number of stations which are maintained jointly by Canada and the United States. Records partly furnished by Prairie Farms Rehabilitation Administration, Canada.

EXTREMES FOR PERIOD OF RECORD: Maximum contents, 117,300 acre-ft (145 hm^3) Apr. 21, 1955, elevation, 3,203.36 ft (976.384 m, present datum), by capacity table used prior to 1970 season; minimum since first filling, 32,760 acre-ft (40.4 hm^3) Oct. 26, 1964, elevation, 3,188.11 ft (971.736 m, present datum) by capacity table used prior to 1970 season.

EXTREMES FOR CURRENT SEASON: Maximum contents, 74,970 acre-ft (92.4 hm^3) May 28, elevation, 3,196.85 ft (974.400 m); minimum daily, 40,910 acre-ft (50.4 hm^3) Mar. 1-11, elevation, 3,190.42 ft (972.440 m).

06159000 EASTEND RESERVOIR.--Lat 49°30'22", long 108°51'08", in NW¼ sec.25, T.6, R.22 W., third meridian, Hydrologic Unit 10050013, at dam on Frenchman River, 1.6 mi (2.6 km) west of Eastend. DRAINAGE AREA, 636 mi^2 (1,647 km^2). PERIOD OF RECORD, February 1937 to current season (seasonal records only). Prior to 1958, published as East End Reservoir at East End. Nonrecording gages read about once a day during irrigation season and twice a day during high stages. Datum of gage is at mean sea level (Canadian Geodetic Survey datum).

Reservoir is formed by earthfill dam completed in 1939, breached during flood in 1952 and rebuilt the same year with a concrete spillway and control works. Usable capacity, 3,300 acre-ft (4.07 hm^3) between elevation 3,000.9 ft (914.67 m), bottom of outlet works, and 3,015 ft (919.0 m), spillway crest. Dead storage, 37 acre-ft (45,600 m^3) below elevation 3,000.9 ft (914.67 m). Prior to 1963, usable capacity was 3,700 acre-ft (4.56 hm^3). Figures given herein represent usable contents. Water is used for irrigation. This is one of a number of stations which are maintained jointly by Canada and the United States. Records partly furnished by Prairie Farms Rehabilitation Administration, Canada. REVISED RECORDS (SEASONS), WSP 1309: 1948(M). WSP 1729: Drainage area. WSP 2116: 1937-65

EXTREMES FOR PERIOD OF RECORD: Maximum contents, about 3,700 acre-ft (4.56 hm^3) Apr. 15, 1952, elevation, about 3,015 ft (919.0 m), dam overtopped; no storage at various times.

EXTREMES FOR CURRENT SEASON: Maximum contents observed,, 2,160 acre-ft (2.66 hm^3) May 27, elevation, 3,012.51 ft (918.213 m); minimum, 107 acre-ft (131,900 m^3) Mar. 11, elevation, 3,002.58 ft (915.186 m).

06162000 VAL MARIE WEST RESERVOIR.--Lat 49°22'06", long 107°53'22", near center of east line of sec.12, T.5, R.15 W., third meridian, Hydrologic Unit 10050013, at dam on Frenchman River, 11 mi (18 km) northwest of Val Marie. PERIOD OF RECORD, February 1940 to current season (seasonal records only). Records prior to October 1946, published only in WSP 1309. April to May 1952 daily elevations and contents, published in WSP 1260-B. Water-stage recorder. Datum of gage is at mean sea level (Canadian Geodetic Survey datum). May 1952 to May 1954, reference point on control structure. May 1954 to May 10, 1966, nonrecording gages.

Reservoir is formed by earthfill dam with concrete control works completed in 1939. Usable capacity, 3,540 acre-ft (4.36 hm^3) between elevation 2,662.8 ft (811.62 m), bottom of outlet works, and 2,676.35 ft (815.75 m), maximum design level. No dead storage. Prior to February 1961, total capacity, 2,270 acre-ft (2.80 hm^3); dead storage, 100 acre-ft (123,000 m^3) below elevation 2,660.0 ft (810.77 m) and February 1961 to 1963, 8 acre-ft (9,860 m^3) below elevation 2,663.0 ft (811.68 m). Figures given herein represent usable contents. Water is used for irrigation. This is one of a number of stations which are maintained jointly by Canada and the United States. Records partly furnished by Prairie Farms Rehabilitation Administration, Canada. REVISED RECORDS (SEASONS), WSP 1309: 1947-50.

EXTREMES FOR PERIOD OF RECORD: Maximum contents, 4,360 acre-ft (5.38 hm^3) May 20, 1967, elevation, 2,677.83 ft (816.203 m); no storage Feb. 28, Mar. 31, 1950.

EXTREMES FOR CURRENT SEASON: Maximum contents, 4,120 acre-ft (5.08 hm^3) Apr. 18, elevation, 2,677.40 ft (816.072 m); minimum observed, 647 acre-ft (797,800 m^3) Mar. 12, elevation, 2,669.29 ft (813.600 m).

RESERVOIRS IN FRENCHMAN RIVER BASIN IN SASKATCHEWAN--Continued

(International gaging stations)

06163000 VAL MARIE RESERVOIR.--Lat 49°18'18", long 107°48'11", in NE¼ sec.15, T.4, R.14 W., third meridian, Hydrologic Unit 10050013, at dam on Frenchman River, 5.4 mi (8.7 km) northwest of Val Marie. PERIOD OF RECORD, February 1937 to current season (seasonal records only). Water-stage recorder. Datum of gage is at mean sea level (Canadian Geodetic Survey datum). Prior to May 11, 1966, nonrecording gages.

Reservoir is formed by earthfill dam with concrete control works; construction began in 1936; storage began in 1937; completed in 1938. Usable capacity, 14,100 acre-ft (17.4 hm^3) between elevation 2,619.5 ft (798.42 m), bottom of outlet works, and 2,638.57 ft (804.236 m), top of dam. No dead storage. Prior to February 1966, capacity varied from 11,060 acre-ft (13.6 hm^3) to 16,560 acre-ft (20.4 hm^3), including dead storage of 829 acre-ft (1.02 hm^3). Figures given herein represent usable contents. Water is used for irrigation. This is one of a number of stations which are maintained jointly by Canada and the United States. Records partly furnished by Prairie Farms Rehabilitation Administration, Canada. REVISED RECORDS (SEASONS), WSP 2116: 1937-65. WSP 1729: 1949.

EXTREMES FOR PERIOD OF RECORD: Maximum contents observed, 18,920 acre-ft (23.3 hm^3) Apr. 19, 1952, elevation, 2,638.80 ft (804.306 m); no storage at times.

EXTREMES FOR CURRENT SEASON: Maximum contents, 11,620 acre-ft (14.3 hm^3) Apr. 19, elevation, 2,637.10 ft (803.787 m); minimum, 3,690 acre-ft (4.55 hm^3) Mar. 9, elevation, 2,630.22 ft (801.692 m).

Monthend contents, in acre-feet, year October 1978 to October 1979

Date	Cypress Lake	Eastend Reservoir	Val Marie West Reservoir	Val Marie Reservoir
Oct. 31	40,910	183	3,030	3,540
Nov. 30	-	-	-	-
Dec. 31	-	-	-	-
Jan. 31	-	-	-	-
Feb. 28	40,910	126	1,060	3,730
Mar. 31	50,550	301	3,830	9,640
Apr. 30	69,260	1,660	3,140	9,080
May 31	74,140	1,990	3,240	9,670
June 30	69,970	676	3,190	7,730
July 31	65,680	1,250	1,560	5,980
Aug. 31	63,580	417	1,240	4,970
Sept. 30	61,910	567	1,170	4,200
Oct. 31	60,680	813	1,250	4,090

06164510 MILK RIVER AT JUNEBERG BRIDGE, NEAR SACO, MT

LOCATION.--Lat 48°30'32", long 107°13'02", in NE¼NE¼ sec.30, T.32 N., R.35 E., Phillips County, Hydrologic Unit 10050014, on left bank 25 ft (8 m) upstream from Juneberg bridge on Phillips County road, 1.5 mi (2.4 km) downstream from Frenchman River, and 6.9 mi (11.1 km) northeast of Saco.

DRAINAGE AREA.--17,670 mi² (45,770 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1977 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 2,130 ft (649 m), from topographic map.

REMARKS.--Water-discharge records good except those for winter period, which are poor, and those for Apr. 6 to Sept. 30, which are fair. Flow increased during irrigation season by water from St. Mary Canal which diverts from the St. Mary River near Babb (see p. 26). Flow regulated by Fresno Reservoir (see p. 610,612), two reservoirs in Lodge Creek basin in Saskatchewan (see p. 218), and four reservoirs in Frenchman River basin in Saskatchewan. There are many small dams for the diversion of irrigation canals upstream.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,400 ft³/s (351 m³/s) Apr. 3, 1978, gage height, 24.20 ft (7.376 m); maximum gage height, 24.30 ft (7.407 m) Mar. 21, 1979 (backwater from ice jam); minimum discharge observed, 29 ft³/s (0.82 m³/s) Oct. 14, 1977, gage height, 2.66 ft (0.810 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, not determined; maximum gage height, 24.30 ft (7.407 m) Mar. 21 (backwater from ice jam); minimum discharge, 128 ft³/s (3.62 m³/s) Sept. 29, 30, gage height, 3.16 ft (0.963 m), but may have been less during winter period.

DISCHARGE, STREAM (CUBIC FEET PER SECOND), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	761	217	195	165	165	150	4100	4650	1020	324	634	273
2	715	220	190	165	165	155	3250	3770	909	296	648	262
3	653	217	190	160	165	155	2540	3040	840	320	643	281
4	539	217	195	155	165	155	2180	2690	877	328	634	255
5	465	388	195	155	165	155	1970	2460	995	957	620	234
6	410	667	190	155	165	155	1880	2320	1020	761	597	241
7	383	579	190	150	160	160	1810	2300	914	893	535	220
8	370	488	190	150	160	165	1800	2330	793	1000	483	200
9	312	414	185	145	160	180	2140	1940	686	1150	423	203
10	213	470	185	145	155	220	2660	2060	539	1180	349	191
11	175	470	185	145	155	300	2940	2250	461	1170	300	191
12	151	300	185	145	155	460	2320	2280	428	1060	277	203
13	154	281	190	145	155	1100	2680	2250	401	936	252	200
14	160	265	195	140	155	3750	3330	2170	419	814	230	194
15	181	250	200	140	155	5700	3110	2030	423	715	210	181
16	197	240	205	140	150	6800	2960	2170	374	634	194	178
17	197	230	205	140	150	7400	3180	2300	362	557	207	175
18	336	225	205	140	150	7900	3670	2220	362	470	200	163
19	396	215	200	145	150	8400	3870	2110	447	392	184	181
20	401	205	195	145	150	8700	3780	1990	505	362	197	166
21	374	195	195	150	150	9000	3510	1900	518	349	207	166
22	332	190	200	150	150	8500	3350	1760	509	336	234	166
23	312	195	195	150	150	7800	3500	1800	442	296	281	166
24	300	195	190	155	150	7300	3720	1790	410	262	316	154
25	292	200	190	155	150	7000	3950	1640	423	262	423	142
26	292	205	190	155	150	6700	4190	1290	405	292	392	148
27	270	210	185	155	150	6300	4500	1300	383	270	385	139
28	262	215	185	155	150	6000	4600	1370	366	353	349	134
29	234	205	180	155	---	5600	4600	1390	379	401	324	134
30	227	200	175	160	---	5300	4720	1260	345	437	292	131
31	217	---	170	160	---	4800	---	1120	---	557	296	---
TOTAL	10281	8568	5925	4670	4350	126320	96810	65950	16955	18134	11324	5672
MEAN	332	286	191	151	155	4075	3227	2127	565	585	365	189
MAX	761	667	205	165	165	9000	4720	4650	1020	1180	648	281
MIN	151	190	170	140	150	150	1800	1120	345	262	184	131
AC-FT	20390	16990	11750	9260	8630	250600	192000	130800	33630	35970	22460	11250

CAL YR 1978 TOTAL 399645 MEAN 1095 MAX 12500 MIN 54 AC-FT 792700
WTR YR 1979 TOTAL 374959 MEAN 1027 MAX 9000 MIN 131 AC-FT 743700

06164510 MILK RIVER AT JUNEBURG BRIDGE, NEAR SACO, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1978 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1977 to current year.
WATER TEMPERATURES: October 1977 to current year.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,220 micromhos Jan. 7, 8, 1978; minimum daily, 280 micromhos Apr. 4, 1978.
WATER TEMPERATURES: Maximum daily, 26.5°C, July 20, 22, Aug. 2, 1979; 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,750 micromhos Dec. 7; minimum daily, 335 micromhos Mar. 16.
WATER TEMPERATURES: Maximum daily, 26.5°C July 20, 22, Aug. 2; minimum daily, 0.0°C on many days during December to March.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)
OCT												
25...	1400	301	1130	8.1	--	12.0	350	79	82	35	130	3.0
NOV												
21...	1100	199	1390	7.9	-22.0	.5	370	64	82	41	180	4.1
DEC												
22...	1400	198	1590	7.5	.0	.5	420	170	91	46	190	4.1
JAN												
11...	1250	143	1720	7.5	-12.0	.0	460	76	100	50	210	4.3
FEB												
01...	1200	167	1850	7.5	-15.0	.0	470	85	99	53	220	4.4
MAR												
02...	1230	151	1570	7.8	-5.0	.0	440	85	100	45	210	4.4
APR												
23...	1130	3470	610	7.3	--	2.0	170	54	40	18	60	2.0
MAY												
10...	1430	2050	826	7.9	13.5	8.5	240	64	55	26	96	2.7
JUN												
05...	1245	996	900	7.9	23.0	21.0	270	39	60	29	95	2.5
JUL												
09...	1100	1230	1140	8.0	30.0	24.0	290	97	67	29	120	3.1
AUG												
22...	1230	242	1060	8.4	16.5	22.0	--	--	--	47	--	--
SEP												
11...	1240	196	1070	8.3	10.5	15.0	280	38	65	28	130	3.4

DATE	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)
OCT											
25...	6.3	270	340	22	.2	5.8	784	1.07	637	.02	.00
NOV											
21...	6.8	310	420	30	.3	6.8	956	1.30	514	.05	.01
DEC											
22...	7.7	250	490	36	.3	9.8	1020	1.39	545	.30	.02
JAN											
11...	8.5	380	500	34	.3	11	1140	1.55	440	.47	.02
FEB											
01...	8.9	380	510	31	.4	11	1160	1.58	523	.48	.01
MAR											
02...	7.6	350	480	34	.4	11	1100	1.50	448	.71	.01
APR											
23...	6.9	120	160	9.9	.2	7.0	375	.51	3510	.23	.02
MAY											
10...	7.2	160	230	15	.3	7.4	546	.74	3020	.12	.02
JUN											
05...	6.9	230	220	12	.2	6.5	568	.77	1530	.03	.02
JUL											
09...	10	190	370	12	.4	6.9	730	.99	2420	.01	.03
AUG											
22...	5.6	250	280	18	.3	5.5	--	1.03	495	.02	.01
SEP											
11...	6.6	240	320	11	.3	6.8	712	.97	377	.02	.00

06164510 MILK RIVER AT JUNEBERG BRIDGE, NEAR SACO, MT--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	622	1140	1580	1620	1700	1580	539	662	773	1040	902	809
2	623	1120	1650	1620	1710	1580	557	704	830	1070	826	900
3	608	1090	1670	1600	1720	1610	596	732	832	1060	813	942
4	643	1070	1740	1600	1730	1620	617	746	860	1070	791	932
5	672	1060	1720	1610	1720	1610	649	751	864	819	767	961
6	698	1090	1740	1620	1710	1620	671	777	897	898	755	973
7	735	1120	1750	1620	1700	1610	662	801	937	921	751	980
8	738	1100	1690	1610	1680	1560	658	810	939	1470	771	1020
9	762	1070	1660	1590	1650	1550	655	821	920	1080	789	1040
10	788	1070	1650	1620	1640	1530	667	871	945	1010	801	1050
11	817	1060	1660	1630	1630	1520	613	862	945	942	812	1030
12	873	1130	1620	1620	1620	1530	624	856	942	832	890	1040
13	902	1140	1600	1640	1610	1130	622	844	991	791	881	1040
14	973	1170	1610	1650	1610	569	647	841	1030	820	909	1050
15	1010	1230	1640	1660	1590	408	622	852	1020	755	938	1060
16	1020	1250	1640	1640	1570	335	601	843	1030	743	949	1060
17	1020	1240	1650	1640	1560	396	596	800	1070	767	963	1060
18	980	1280	1650	1630	1570	383	572	796	1110	793	989	1070
19	965	1320	1590	1630	1570	358	593	811	1140	806	1010	1080
20	985	1360	1580	1610	1560	367	602	822	1150	829	1020	1100
21	1230	1380	1600	1600	1550	382	617	820	1110	853	1030	1100
22	1130	1400	1630	1560	1550	408	615	821	1090	865	1050	1120
23	1140	1400	1640	1590	1550	472	619	826	1070	863	1060	1120
24	1120	1400	1620	1600	1560	489	642	821	1020	934	1060	1130
25	1160	1390	1620	1610	1580	489	639	815	1020	939	1090	1140
26	1160	1380	1650	1630	1560	500	644	841	1000	1010	1080	1150
27	1180	1410	1650	1620	1580	501	643	892	1010	1000	1080	1160
28	1200	1390	1660	1630	1580	509	587	881	1020	998	1040	1170
29	1210	1430	1670	1640	---	492	602	846	1020	974	1000	1180
30	1200	1500	1650	1650	---	473	614	843	1020	973	965	1200
31	1180	---	1640	1670	---	478	---	851	---	968	828	---
MEAN	947	1240	1650	1620	1620	905	620	815	987	932	923	1060

WTR YR 1979 MEAN 1110 MAX 1750 MIN 335

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15.5	8.5	1.0	.0	.0	.0	1.0	10.0	17.5	24.5	25.0	20.0
2	13.0	9.0	1.0	.0	.0	.0	3.0	10.0	17.5	24.0	26.5	20.0
3	13.5	8.5	.5	.0	.0	.0	2.5	10.0	17.5	23.0	25.0	20.5
4	11.5	6.5	1.5	.0	.0	.0	2.5	11.0	18.5	24.0	25.5	21.0
5	12.5	6.5	1.0	.0	.0	.0	2.0	10.0	18.5	23.5	25.5	19.5
6	11.5	6.0	1.0	.5	.0	.5	2.0	9.0	18.5	25.0	25.5	19.5
7	13.0	6.0	1.0	.5	.0	.5	3.0	9.0	17.5	24.5	24.5	19.0
8	13.0	6.5	1.0	.5	.0	.5	3.5	9.0	16.5	25.0	23.5	19.0
9	14.0	5.5	1.0	.5	.0	.5	4.0	9.0	17.0	25.5	23.5	20.0
10	13.0	3.0	1.0	.5	.0	.5	5.0	9.0	18.5	25.0	22.5	19.0
11	12.5	2.0	2.0	.5	.0	.5	4.5	9.0	19.0	26.0	23.0	17.0
12	12.0	1.0	1.5	.0	.0	1.5	4.0	10.0	20.0	25.0	23.0	16.5
13	11.5	1.0	1.5	.0	.0	2.0	4.5	11.0	21.0	24.5	23.0	15.5
14	11.0	1.5	2.0	.0	.0	2.0	5.0	11.5	21.5	24.0	22.0	16.0
16	12.0	1.0	1.0	.0	.0	2.5	6.0	14.5	20.5	23.5	22.5	16.5
17	9.0	1.0	1.5	.0	.0	2.0	7.5	14.0	21.5	24.5	22.0	17.0
18	8.0	1.0	1.0	.5	.0	2.0	8.5	15.0	20.0	25.0	23.0	17.0
19	11.0	1.0	1.0	.0	.0	1.5	8.5	16.0	20.0	25.5	25.0	17.0
20	9.0	1.0	1.0	.0	.0	1.0	9.0	16.0	20.5	26.5	25.0	17.0
21	10.0	1.0	1.0	.0	.0	1.5	9.0	16.0	21.0	26.0	24.0	16.5
22	8.5	.5	1.0	.0	.0	1.5	7.0	15.0	21.5	26.5	23.0	16.5
23	10.0	.5	1.0	.0	.0	2.0	8.5	15.5	22.5	26.0	23.0	16.0
24	9.0	1.5	1.0	.0	.0	2.0	8.5	16.0	23.0	25.5	23.0	16.5
25	8.5	1.0	1.0	.0	.0	2.5	8.5	17.0	23.0	24.5	22.5	16.5
26	9.0	1.0	1.0	.5	.0	2.5	9.0	18.0	24.0	23.0	23.0	16.0
27	8.5	.5	1.0	.5	.0	3.0	9.0	19.0	23.5	24.5	22.0	19.0
28	8.5	1.0	1.0	.0	.0	3.0	9.5	19.5	23.5	23.0	22.5	17.5
29	9.0	1.0	.5	.0	---	3.0	10.0	17.5	25.0	23.0	22.5	16.0
30	8.0	1.0	.0	.0	---	2.5	10.0	17.0	25.0	23.0	23.0	16.0
31	7.5	---	.0	.0	---	2.0	---	17.5	---	24.0	22.5	---
MEAN	11.0	3.0	1.0	.0	.0	1.5	6.0	13.5	20.5	24.5	23.5	17.5

WTR YR 1979 MEAN 10.0 MAX 26.5 MIN .0

06164800 BEAVER CREEK ABOVE DIX CREEK, NEAR MALTA, MT

LOCATION(REVISED).--Lat 48°05'30", long 107°33'18", in SE¼ sec.14, T.27 N., R.32 E., Phillips County, Hydrologic Unit 10050014, on left bank 150 ft (46 m) upstream from bridge on county road, 1 mi (2 km) upstream from Dix Creek, and 25 mi (40 km) southeast of Malta.

DRAINAGE AREA.--929 mi² (2,406 km²).

PERIOD OF RECORD.--October 1966 to September 1969, October 1975 to current year.

REVISED RECORDS.--WDR-77-1: 1976(M).

GAGE.--Water-stage recorder. Datum of gage is 2,269.18 ft (691.646 m) National Geodetic Vertical Datum of 1929. Prior to July 25, 1979, at site 180 ft (55 m) downstream at same datum.

REMARKS.--Records fair except those for winter period, which are poor. Some regulation by numerous small reservoirs on tributary streams. Several observations of water temperature were made during the year and are available in files of Helena district office.

AVERAGE DISCHARGE.--7 years (1967-69, 1976-79), 63.9 ft³/s (1.810 m³/s), 46,300 acre-ft/yr (57.1 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,180 ft³/s (203 m³/s) Mar. 28, 1978, gage height, 19.60 ft (5.974 m), from floodmark; no flow at times each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 500 ft³/s (14.2 m³/s) and maximums (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 14	1030	ice jam		a*16.64	5.072	Apr. 26	1200	2,170	61.5	8.35	2.545
Mar. 15	0400	*3,890	110	16.60	5.060	Apr. 30	1100	1,980	56.1	8.07	2.460

a--observed.

No flow on many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29	7.0	8.8	4.5	4.6	6.6	335	1040	36	.45	.00	.00
2	27	7.0	8.8	4.4	4.4	7.0	299	348	34	.24	.00	.00
3	23	7.0	8.8	4.4	5.0	6.6	299	167	30	.20	.00	.00
4	27	7.0	8.8	4.1	5.8	7.2	258	126	27	.18	.00	.00
5	21	9.3	8.2	4.5	6.6	8.0	228	112	23	.34	.00	.00
6	27	8.7	7.2	4.3	6.2	8.2	188	128	21	.80	.00	.00
7	27	7.0	7.2	4.2	5.6	9.0	193	183	18	71	.00	.00
8	26	7.0	7.6	4.7	5.2	8.8	202	284	17	54	.00	.00
9	21	7.0	8.2	4.6	5.6	8.2	245	332	14	16	.00	.00
10	21	7.0	8.0	4.5	5.4	8.6	256	336	13	5.6	.00	.00
11	19	7.0	7.6	4.2	5.0	1080	264	398	13	2.9	.00	.00
12	16	7.0	7.2	4.0	5.2	2600	278	236	10	2.0	.00	.00
13	13	7.0	7.0	3.8	5.8	2400	239	160	7.4	1.3	.00	.00
14	11	7.0	7.4	3.5	5.4	3000	213	138	4.6	.72	.00	.00
15	9.9	6.0	6.8	3.7	4.5	3490	200	122	3.7	.45	.00	.00
16	11	6.0	7.4	4.0	4.6	2860	200	110	3.4	.34	.00	.00
17	9.9	6.0	7.0	4.4	5.2	2560	198	101	3.9	.24	.00	.00
18	8.7	6.0	6.8	4.3	5.8	2490	311	93	3.4	.16	.00	.00
19	9.3	6.0	6.6	4.8	6.6	2020	320	83	3.2	.14	.00	.00
20	8.1	7.4	7.4	5.6	6.2	1520	234	75	2.7	.08	.00	.00
21	8.1	10	8.4	6.2	5.8	1260	203	73	2.3	.04	.00	.00
22	8.1	12	8.0	5.6	5.4	1070	176	75	1.8	.00	.00	.00
23	6.5	13	7.6	5.4	5.2	930	183	69	2.1	.00	.00	.00
24	5.0	12	7.8	6.2	5.6	700	261	64	2.5	.00	.00	.00
25	5.3	11	7.4	6.6	6.8	720	938	61	2.7	.00	.00	.00
26	6.5	10	6.8	6.0	8.2	550	2010	57	2.3	.00	.00	.00
27	6.5	9.6	6.4	5.6	7.6	480	1460	52	1.8	.00	.00	.00
28	7.0	9.4	6.0	5.4	7.0	435	922	47	1.4	.00	.00	.00
29	7.0	9.2	5.0	5.0	---	355	1430	40	1.2	.00	.00	.00
30	6.5	8.8	4.0	4.8	---	345	1860	39	.89	.00	.00	.00
31	6.5	---	4.2	5.0	---	355	---	36	---	.00	.00	---
TOTAL	437.9	244.4	224.4	148.5	160.5	31298.2	14425	5185	307.29	157.18	.00	.00
MEAN	14.1	8.15	7.24	4.79	5.73	1010	481	167	10.2	5.07	.000	.000
MAX	29	13	8.8	6.6	8.2	3490	2010	1040	36	71	.00	.00
MIN	5.0	6.0	4.0	3.5	4.4	6.6	178	36	.89	.00	.00	.00
AC-FT	869	485	445	295	318	62080	28610	10280	610	312	.00	.00

CAL YR 1978 TOTAL 67275.96 MEAN 184 MAX 6460 MIN .00 AC-FT 133400
WTR YR 1979 TOTAL 52588.37 MEAN 144 MAX 3490 MIN .00 AC-FT 104300

06169500 ROCK CREEK BELOW HORSE CREEK, NEAR INTERNATIONAL BOUNDARY

(Hydrologic bench-mark station)

LOCATION.--Lat 48°58'10", long 106°50'20", in NE¼NW¼ sec.15, T.37 N., R.37 E., Valley County, Hydrologic Unit 10050015, on right bank 2 mi (3 km) south of international boundary, 3 mi (5 km) downstream from Horse Creek, and 21 mi (34 km) northwest of Opheim, Mt.

DRAINAGE AREA.--328 mi² (850 km²).

PERIOD OF RECORD.--March 1916 to October 1926, September 1956 to current year (seasonal records only prior to October 1978). Monthly discharge only for some periods, published in WSP 1309. Published as Rock Creek near Barnard, Mt. 1916-17. Prior to September 1956, records were collected at both Horse Creek (1914-56) and Rock Creek above Horse Creek (1914-56). Summations are equivalent to records at this site.

REVISED RECORDS.--WSP 1509: 1925(M). WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 2,530 ft (771 m), from topographic map. March 1916 to October 1926, nonrecording gages at several sites within 500 ft (152 m) upstream at different datum.

REMARKS.--Records good except those for winter months, which are poor. Several small diversions for irrigation above station. Several observations of water temperature were made during the year and are available in files of Helena district office.

COOPERATION.--This is one of a number of stations which are maintained jointly by the United States and Canada.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,420 ft³/s (125 m³/s) Apr. 7, 1969, gage height, 12.03 ft (3.667 m); maximum gage height, 13.40 ft (4.084 m) Mar. 29, 1978 (backwater from ice); no flow at times most seasons.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Apr. 15, 1952, reached a stage of 12.6 ft (3.84 m), from floodmarks, discharge, 5,110 ft³/s (145 m³/s), by slope-area measurement of peak flow.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,580 ft³/s (44.7 m³/s) Apr. 18, gage height, 8.19 ft (2.496 m); maximum gage height, 9.37 ft (2.856 m) Apr. 10 (backwater from ice); no flow Feb. 2 to Mar. 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.6	3.2	1.2	.40	.01	.00	13	56	12	2.1	3.1	1.1
2	1.6	3.0	.80	.40	.00	.00	12	52	11	1.9	3.0	1.1
3	1.7	2.9	.80	.40	.00	.00	12	48	10	1.7	2.7	.99
4	1.7	3.0	1.0	.40	.00	.00	12	44	9.8	9.0	2.9	.96
5	1.6	2.8	1.0	.40	.00	.00	12	40	9.2	552	2.8	.75
6	1.7	2.9	.80	.40	.00	.01	14	49	8.3	366	2.5	.72
7	2.0	2.6	.63	.40	.00	.05	20	227	7.5	90	2.3	.75
8	2.4	3.1	.63	.40	.00	.10	64	231	7.4	48	2.2	.79
9	2.3	3.2	.80	.40	.00	.10	320	94	7.2	31	1.9	.74
10	2.2	2.5	1.0	.40	.00	.10	1010	67	6.7	22	1.9	.87
11	2.1	2.5	1.2	.35	.00	.20	700	50	6.5	17	1.9	1.0
12	1.8	2.6	1.4	.35	.00	.30	300	44	6.3	13	1.7	1.1
13	1.7	2.8	1.6	.30	.00	.50	156	40	5.6	11	1.6	1.0
14	1.8	2.8	1.8	.30	.00	.60	125	39	4.8	9.4	1.6	.87
15	1.7	2.8	1.9	.25	.00	.80	172	41	4.4	8.5	1.6	1.0
16	1.6	2.6	1.9	.25	.00	1.2	370	37	4.3	7.9	1.6	.92
17	1.5	2.5	1.8	.20	.00	2.0	1200	33	4.2	7.3	1.5	.87
18	1.5	2.1	1.6	.20	.00	2.5	1430	31	4.0	6.6	1.5	.88
19	1.7	1.6	1.4	.20	.00	3.0	1150	29	4.0	6.0	1.4	.75
20	2.0	1.3	1.2	.20	.00	3.5	669	28	3.9	5.6	1.3	.69
21	2.2	1.2	1.2	.20	.00	4.0	243	30	3.8	5.3	1.2	.75
22	2.3	1.3	1.4	.20	.00	5.0	140	27	4.0	4.6	1.3	.79
23	2.3	1.5	1.2	.20	.00	7.0	112	24	3.6	4.3	1.3	.79
24	2.3	1.7	1.2	.20	.00	14	100	21	3.2	4.1	1.2	.75
25	2.5	1.9	1.3	.20	.00	20	119	19	2.8	4.1	1.2	.72
26	2.5	2.1	1.2	.15	.00	22	239	17	2.6	4.1	1.2	.77
27	2.5	2.1	1.0	.15	.00	20	116	16	2.5	3.9	1.2	.81
28	2.8	1.9	.80	.10	.00	15	81	14	2.7	3.5	1.1	.86
29	2.9	1.7	.63	.10	---	15	72	13	2.6	3.5	1.2	.86
30	3.3	1.5	.53	.10	---	17	64	13	2.4	3.3	1.2	.86
31	3.4	---	.48	.05	---	15	---	12	---	3.4	1.1	---
TOTAL	65.4	69.9	35.40	8.25	.01	168.96	9047	1486	167.3	1262.1	54.2	25.81
MEAN	2.11	2.33	1.14	.27	.000	5.45	302	47.9	5.58	40.7	1.75	.86
MAX	3.4	3.2	1.9	.40	.01	22	1430	231	12	552	3.1	1.1
MIN	1.5	1.2	.48	.05	.00	.00	12	12	2.4	1.7	1.1	.69
AC-FT	130	139	70	16	.02	335	17940	2950	332	2500	108	51

WTR YR 1979 TOTAL 12390.33 MEAN 33.9 MAX 1430 MIN .00 AC-FT 24580

06169500 ROCK CREEK BELOW HORSE CREEK AT INTERNATIONAL BOUNDARY--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1977 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	COLI-FORM, TOTAL, IMMED. (COLS. PER 100 ML) (31501)
OCT										
16...	1600	1.6	1	1390	8.5	21.0	9.0	10.1	95	150
NOV										
08...	1230	3.1	2	1320	8.4	6.5	6.5	10.6	--	890
DEC										
27...	1400	1.1	83	1700	7.7	-7.0	.5	12.0	92	K14
JAN										
24...	1320	.20	2	1510	7.6	-7.0	.0	1.1	8	K1
MAR										
29...	1245	15	2	420	7.5	.0	.5	10.4	79	--
APR										
10...	1600	901	3	168	8.3	1.0	1.5	11.0	67	--
17...	1015	1390	2	--	--	5.0	1.5	--	--	--
MAY										
21...	1230	31	1	1100	8.5	20.0	13.5	8.8	93	230
JUN										
04...	1115	9.8	0	1260	8.4	22.5	18.0	7.5	87	K11
JUL										
18...	1300	6.8	0	1260	8.3	28.5	24.5	8.6	112	110
AUG										
03...	0900	2.8	2	1630	8.5	17.5	19.5	8.4	100	K40
SEP										
18...	1230	.94	0	1920	8.8	22.5	14.0	9.3	98	30

DATE	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)
OCT										
16...	--	K47	150	0	27	20	200	7.1	7.9	440
NOV										
08...	K730	49	240	0	40	34	250	7.0	8.6	510
DEC										
27...	K14	K6	350	0	61	47	300	7.0	11	620
JAN										
24...	K7	K17	260	0	49	33	280	7.6	7.3	490
MAR										
29...	K100	350	73	0	16	8.1	61	3.1	8.6	120
APR										
10...	K800	330	33	0	7.7	3.4	21	1.6	5.2	48
17...	--	--	--	--	--	--	--	--	4.4	--
MAY										
21...	K17	28	270	0	51	35	170	4.5	7.4	410
JUN										
04...	K13	24	290	0	54	38	190	4.8	7.7	460
JUL										
18...	42	40	250	0	47	32	190	5.2	10	420
AUG										
03...	50	57	260	0	38	40	270	7.3	11	450
SEP										
18...	49	K17	230	0	25	40	340	9.6	12	520

06169500 ROCK CREEK BELOW HORSE CREEK, AT INTERNATIONAL BOUNDARY--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	PHOS- PHORUS, TOTAL (MG/L AS P) (00665)
OCT										
16...	290	6.4	.4	7.4	880	827	1.20	3.80	--	.06
NOV										
08...	240	5.7	.3	7.9	892	893	1.21	7.47	.01	.04
DEC										
27...	320	6.1	.3	21	1110	1140	1.51	3.30	.19	.03
JAN										
24...	350	9.6	.4	14	1050	1040	1.43	.57	.05	.01
MAR										
29...	94	5.0	.1	8.8	297	274	.40	12.0	.14	.28
APR										
10...	29	2.8	.1	5.0	147	103	.20	358	.00	.34
17...	--	--	--	--	--	--	--	--	--	--
MAY										
21...	190	4.0	.3	8.0	730	712	.99	61.1	.01	.04
JUN										
04...	220	3.8	.4	7.3	814	798	1.11	21.5	.01	.04
JUL										
18...	250	8.1	.4	18	826	808	1.12	15.2	.00	.05
AUG										
03...	350	13	.4	11	1060	1000	1.44	8.01	.05	.01
SEP										
18...	510	7.9	.5	5.0	1260	1250	1.71	3.20	.02	.04

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) (01007)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) (01027)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) (01034)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) (01042)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE) (01045)
DEC							
27...	1400	4	100	1	20	3	20
APR							
10...	1600	2	100	3	10	20	7000
SEP							
18...	1230	5	100	0	10	1	650

DATE	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) (01051)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) (01055)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) (71900)	SELE- NIUM, TOTAL (UG/L AS SE) (01147)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG) (01077)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) (01092)	CYANIDE TOTAL (MG/L AS CN) (00720)
DEC							
27...	5	40	.0	0	1	10	.00
APR							
10...	20	100	.2	0	0	50	.00
SEP							
18...	2	50	.1	0	0	10	.00

PESTICIDE ANALYSES, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	PCB, TOTAL (UG/L) (39516)	PCB, TOTAL IN BOT- TOM MA- TERIAL (UG/KG) (39519)	ALDRIN, TOTAL (UG/L) (39330)	ALDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG) (39333)	CHLOR- DANE, TOTAL (UG/L) (39350)	CHLOR- DANE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG) (39351)	DDD, TOTAL (UG/L) (39360)	DDD, TOTAL IN BOT- TOM MA- TERIAL (UG/KG) (39363)	DDE, TOTAL (UG/L) (39365)
APR										
10...	1600	.0	--	.00	--	.0	--	.00	--	.00
17...	1015	--	0	--	.0	--	0	--	.0	--

06169500 ROCK CREEK BELOW HORSE CREEK, AT INTERNATIONAL BOUNDARY--Continued

PESTICIDE ANALYSES, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	DDE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG) (39368)	DDT, TOTAL (UG/L) (39370)	DDT, TOTAL IN BOT- TOM MA- TERIAL (UG/KG) (39373)	DI- AZINON, TOTAL (UG/L) (39570)	DI- ELDRIN TOTAL (UG/L) (39380)	DI- ELDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG) (39383)	ENDO- SULFAN, TOTAL (UG/L) (39388)	ENDRIN, TOTAL (UG/L) (39390)	ENDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG) (39393)	ETHION, TOTAL (UG/L) (39398)
APR										
10...	--	.00	--	.00	.00	--	.00	.00	--	.00
17...	.0	--	.1	--	--	.0	--	--	.0	--

DATE	HEPTA- CHLOR, TOTAL (UG/L) (39410)	HEPTA- CHLOR, TOTAL IN BOT- TOM MA- TERIAL (UG/KG) (39413)	HEPTA- CHLOR EPOXIDE TOTAL (UG/L) (39420)	HEPTA- CHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG) (39423)	LINDANE TOTAL (UG/L) (39340)	LINDANE TOTAL IN BOT- TOM MA- TERIAL (UG/KG) (39343)	MALA- THION, TOTAL (UG/L) (39530)	METHYL PARA- THION, TOTAL (UG/L) (39600)	METHYL TRI- THION, TOTAL (UG/L) (39790)
APR									
10...	.00	--	.00	--	.00	--	.00	.00	.00
17...	--	.0	--	.0	--	.0	--	--	--

DATE	MIREX, TOTAL (UG/L) (39755)	PARA- THION, TOTAL (UG/L) (39540)	PER- THANE TOTAL (UG/L) (39034)	TOX- APHENE, TOTAL (UG/L) (39400)	TOXA- PHENE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG) (39403)	TOTAL TRI- THION (UG/L) (39786)	2,4-D, TOTAL (UG/L) (39730)	2,4,5-T TOTAL (UG/L) (39740)	SILVEX, TOTAL (UG/L) (39760)
APR									
10...	.00	.00	.00	0	--	.00	.01	.00	.00
17...	--	--	--	--	0	--	--	--	--

RADIOCHEMICAL ANALYSES, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	GROSS ALPHA, DIS- SOLVED (UG/L AS U-NAT) (80030)	GROSS ALPHA, DIS- SOLVED (PCI/L AS U-NAT) (01515)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT) (80040)	GROSS ALPHA, SUSP. TOTAL (PCI/L AS U-NAT) (01516)	GROSS BETA, DIS- SOLVED (PCI/L AS CS-137) (03515)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137) (03516)	GROSS BETA, DIS- SOLVED (PCI/L AS SR/ YT-90) (80050)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/ YT-90) (80060)	RADIUM 226, DIS- SOLVED, RADON METHOD (PCI/L) (09511)	URANIUM DIS- SOLVED, EXTRAC- TION (UG/L) (80020)
APR											
17...	1015	<3.1	<2.1	.1	.1	4.9	49	5.2	45	.05	1.1

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPER- ATURE (DEG C) (00010)	STREAM- FLOW, INSTAN- TANEOUS (CFS) (00061)	SEDI- MENT, SUS- PENDED (MG/L) (80154)	SEDI- MENT DIS- CHARGE, SUS- PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT						
16...	1600	9.0	1.6	123	.53	--
NOV						
08...	1230	6.5	3.1	82	.69	96
DEC						
27...	1400	.5	1.1	139	.41	--
MAR						
29...	1245	.5	15	150	6.1	95
APR						
10...	1600	1.5	901	165	401	99
MAY						
21...	1230	13.5	31	64	5.4	--
JUN						
04...	1115	18.0	9.8	82	2.2	--
JUL						
18...	1300	24.5	6.8	100	1.8	--
AUG						
03...	0900	19.5	2.8	113	.85	--
SEP						
18...	1230	14.0	.94	45	.11	--

06174000 WILLOW CREEK NEAR GLASGOW, MT

LOCATION.--Lat 48°06'52", long 106°40'15", in SW¼NW¼NE¼ sec.10, T.27 N., R.39 E., Valley County, Hydrologic Unit 10050012, on right bank 5.8 mi (9.3 km) south of Glasgow and 10.6 mi (17.1 km) upstream from mouth.

DRAINAGE AREA.--538 mi^2 (1,393 km^2)

PERIOD OF RECORD.--October 1953 to current year.

GAGE.--Water-stage recorder. Datum of gage is 2,085.63 ft (635.700 m), National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers).

REVISED RECORDS.--WSP 1729: Drainage area. WSP 1916: 1960.

REMARKS.--Records good except those for winter period, which are fair. There are more than 270 storage and detention reservoirs upstream. Water-spreader irrigation of about 5,000 acres (20.2 km^2) of hay or pasture lands to extent of available flow. Several observations of water temperature were made during the year and are available in files of Helena district office.

AVERAGE DISCHARGE.--26 years, 62.8 ft^3/s (1.778 m^3/s), 45,500 acre-ft/yr (56.1 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,400 ft^3/s (351 m^3/s) July 14, 1962, gage height, 21.70 ft (6.614 m); maximum gage height, 23.0 ft (7.01 m) June 21, 1974; no flow at times each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,780 $ft^3.s$ (78.7 m^3/s) Apr. 10, gage height, 20.61 ft (6.282 m); no flow Dec. 28 to Mar. 4, June 10 to Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	147	3.0	1.4	.00	.00	.00	396	98	4.8	.00	.00	.00
2	121	3.0	1.0	.00	.00	.00	303	76	4.3	.00	.00	.00
3	54	3.5	.80	.00	.00	.00	289	61	2.9	.00	.00	.00
4	30	4.1	1.0	.00	.00	.00	281	49	2.1	.00	.00	.00
5	21	3.4	.80	.00	.00	1.0	274	43	1.4	.00	.00	.00
6	11	4.0	.60	.00	.00	2.5	194	183	.90	.00	.00	.00
7	6.2	4.6	.80	.00	.00	3.5	353	1000	.50	.00	.00	.00
8	4.2	4.3	1.0	.00	.00	3.5	823	1020	.25	.00	.00	.00
9	3.1	3.5	1.0	.00	.00	3.0	1900	753	.10	.00	.00	.00
10	2.6	2.6	1.2	.00	.00	5.0	2610	430	.00	.00	.00	.00
11	2.2	2.1	1.4	.00	.00	11	2020	305	.00	.00	.00	.00
12	1.8	2.2	1.0	.00	.00	30	1450	254	.00	.00	.00	.00
13	1.6	2.2	.80	.00	.00	370	826	150	.00	.00	.00	.00
14	1.4	2.4	1.0	.00	.00	450	961	102	.00	.00	.00	.00
15	1.4	2.3	.80	.00	.00	600	1490	74	.00	.00	.00	.00
16	1.4	2.4	.60	.00	.00	800	1080	56	.00	.00	.00	.00
17	1.4	2.3	.40	.00	.00	900	1070	47	.00	.00	.00	.00
18	1.4	2.2	.30	.00	.00	1000	768	40	.00	.00	.00	.00
19	1.5	2.1	.30	.00	.00	1100	384	33	.00	.00	.00	.00
20	1.6	2.0	.40	.00	.00	1000	249	26	.00	.00	.00	.00
21	1.8	1.8	.60	.00	.00	1300	192	20	.00	.00	.00	.00
22	1.7	1.6	.40	.00	.00	1490	146	15	.00	.00	.00	.00
23	1.6	2.0	.30	.00	.00	1600	135	12	.00	.00	.00	.00
24	2.2	2.2	.40	.00	.00	1920	206	9.4	.00	.00	.00	.00
25	2.3	2.1	.30	.00	.00	2470	691	7.7	.00	.00	.00	.00
26	2.3	2.1	.20	.00	.00	2220	638	6.7	.00	.00	.00	.00
27	2.3	2.1	.10	.00	.00	1560	367	6.0	.00	.00	.00	.00
28	2.9	2.2	.00	.00	.00	1050	242	5.8	.00	.00	.00	.00
29	3.0	2.1	.00	.00	---	800	178	5.3	.00	.00	.00	.00
30	3.2	1.8	.00	.00	---	684	128	5.3	.00	.00	.00	.00
31	3.1	---	.00	.00	---	538	---	5.1	---	.00	.00	---
TOTAL	442.2	78.4	18.90	.00	.00	21911.30	20644	4898.3	17.25	.00	.00	.00
MEAN	14.3	2.61	.61	.000	.000	707	688	158	.58	.000	.000	.000
MAX	147	4.6	1.4	.00	.00	2470	2610	1020	4.8	.00	.00	.00
MIN	1.4	1.8	.00	.00	.00	.00	128	5.1	.00	.00	.00	.00
AC-FT	877	156	37	.00	.00	43460	40950	9720	34	.00	.00	.00

CAL YR 1978 TOTAL 57269.13 MEAN 157 MAX 2490 MIN .00 AC-FT 113600
WTR YR 1979 TOTAL 48010.35 MEAN 132 MAX 2610 MIN .00 AC-FT 95230

06174500 MILK RIVER AT NASHUA, MT

LOCATION.--Lat 48°07'52", long 106°21'50", in NE¼NE¼ sec.1, T.27 N., R.41 E., Valley County, Hydrologic Unit 10050012, on right bank at downstream side of former highway bridge site, 0.6 mi (1.0 km) southwest of Nashua, 2.0 mi (3.2 km) upstream from Porcupine Creek, and at mile 24.0 (38.6 km).

DRAINAGE AREA.--22,332 mi² (57,840 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1939 to current year.

REVISED RECORDS.--WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,027.75 ft (618.058 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good except those for winter period, which are poor. Flow increased during irrigation season by water from St. Mary Canal which diverts from the St. Mary River near Babb. Flow regulated by Fresno Reservoir, two reservoirs in Lodge Creek basin in Saskatchewan, and four reservoirs in Frenchman River basin in Saskatchewan. Diversions for irrigation of about 140,000 acres (567 km²) above station.

AVERAGE DISCHARGE.--40 years, 739 ft³/s (20.93 m³/s) 535,400 acre-ft/yr (660 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 45,300 ft³/s (1,280 m³/s) Apr. 18, 1952, gage height, 31.38 ft (9.565 m); minimum, 0.6 ft³/s (0.017 m³/s) July 15, 1961, gage height, 1.96 ft (0.597 m).

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 14,300 ft³/s (405 m³/s) Mar. 27; maximum gage height, 29.58 ft (9.016 m) Mar. 28 (backwater from ice); minimum discharge, 149 ft³/s (4.22 m³/s) June 16, gage height, 2.44 ft (0.744 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1350	457	270	195	165	215	11100	6560	1560	463	417	396
2	1230	401	260	190	160	215	9560	6380	1560	469	469	374
3	1140	354	310	185	160	220	8820	6220	1480	463	545	354
4	1040	324	300	185	160	225	8050	5980	1320	463	635	343
5	925	300	280	185	160	230	6960	5460	1030	463	673	329
6	848	314	280	185	165	240	5550	4880	727	1520	642	314
7	779	314	280	185	165	245	4440	4990	621	2700	611	268
8	707	295	290	185	170	250	3800	5980	669	2670	597	214
9	645	457	285	180	170	260	4590	6410	841	2230	566	206
10	590	593	275	180	175	270	7340	6520	963	1040	523	210
11	541	607	265	180	175	280	9570	6230	960	1470	457	210
12	494	600	265	175	180	300	9500	5440	876	1200	412	218
13	451	541	260	170	185	350	9060	4490	707	1030	343	218
14	385	420	250	165	185	450	6740	3780	469	995	295	230
15	324	390	245	175	175	600	8620	3350	277	963	277	242
16	295	345	240	175	190	750	8510	3100	180	651	246	251
17	277	340	235	175	190	1380	8900	2910	162	656	216	259
18	268	340	235	180	190	2600	10500	2740	259	590	194	259
19	255	340	235	185	195	4700	9660	2690	304	566	180	264
20	210	355	240	190	195	5400	8380	2660	329	523	173	250
21	183	330	240	195	195	6000	7770	2590	365	440	176	244
22	173	275	240	185	195	6800	7590	2460	412	354	164	231
23	169	290	240	180	195	7700	7560	2320	434	277	166	222
24	169	305	235	180	195	8300	7450	2190	463	236	166	209
25	214	305	230	180	195	10000	7070	2080	449	218	176	188
26	335	305	225	175	200	12000	6900	1980	449	238	210	190
27	457	305	225	175	205	14300	6840	1760	467	242	255	187
28	543	300	220	170	210	14000	6750	1400	481	246	401	175
29	628	295	215	170	---	13500	6710	1300	463	254	440	179
30	562	290	205	165	---	12500	6670	1410	457	324	434	175
31	523	---	195	165	---	12000	---	1530	---	385	423	---
TOTAL	16765	11067	7770	5565	5100	136280	232990	117810	19874	25366	11469	7407
MEAN	541	370	251	180	182	4396	7766	3800	662	818	370	247
MAX	1350	607	310	195	210	14300	11100	6560	1560	2700	673	396
MIN	169	275	195	165	160	215	3800	1300	162	218	166	175
AC-FT	33250	21950	15410	11040	10120	270300	462100	233700	39420	50310	22750	14690

CAL YR 1978 TOTAL 596826 MEAN 1635 MAX 16600 MIN 80 AC-FT 1184000
WTR YR 1979 TOTAL 597521 MEAN 1637 MAX 14300 MIN 160 AC-FT 1185000

06174500 MILK RIVER AT NASHUA, MT--Continued
(National Stream Quality Accounting Network)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1949-53, 1959 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: January 1974 to current year.
WATER TEMPERATURES: January 1974 to current year.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,540 micromhos Dec. 12, 1977; minimum daily, 246 micromhos Apr.14, 1974.
WATER TEMPERATURES: Maximum daily, 27.0°C July 20, 21, 1974; minimum daily, 0.0° on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,020 micromhos Jan. 10, 11, 13; minimum daily, 409 micromhos Mar. 24, 26.
WATER TEMPERATURES: Maximum daily, 25.0°C July 21-24; minimum daily, 0.0°C on many days during November to March.

REVISIONS.--The concentrations of dissolved cadmium and dissolved lead for June 8, 1978 (1500 hours) were found in error and have been deleted.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)
OCT										
30...	1300	562	0	1080	8.2	8.0	8.0	6.0	10.4	98
NOV										
20...	1400	356	0	1350	8.0	-7.0	.5	5.6	13.0	95
DEC										
18...	1400	236	3	2050	7.7	-5.0	.0	1.5	10.8	79
JAN										
15...	1500	177	70	2070	7.6	-23.0	.0	2.9	9.7	71
FEB										
13...	1400	168	3	1960	7.6	-5.0	.3	2.0	8.8	66
MAR										
24...	1500	6200	0	418	7.3	13.0	.5	550	8.9	67
APR										
26...	1500	6670	87	674	7.9	15.0	8.0	370	10.2	92
MAY										
23...	1400	2360	0	876	8.0	23.0	16.0	150	8.7	93
JUN										
21...	1400	367	0	1480	8.3	21.5	21.5	30	8.3	100
JUL										
27...	1300	237	0	1160	8.3	24.0	23.0	36	7.3	91
AUG										
10...	0900	541	0	1100	8.3	18.0	21.5	37	7.2	88
SEP										
20...	1200	246	1	1270	8.3	17.5	16.5	16	8.8	96

06174500 MILK RIVER AT NASHUA, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)
OCT										
30...	53	56	300	65	67	33	130	3.3	6.7	240
NOV										
20...	K10	K17	380	79	84	41	160	3.6	6.3	300
DEC										
18...	35	<1	580	160	130	63	260	4.7	6.5	420
JAN										
15...	51	K9	550	120	120	60	250	4.7	9.2	430
FEB										
13...	120	K7	560	160	120	62	270	5.0	6.3	400
MAR										
28...	K1500	380	100	43	26	9.2	42	1.8	7.1	60
APR										
26...	K77	K200	160	62	37	17	70	2.4	6.0	100
MAY										
23...	K28	53	250	66	54	27	96	2.7	7.3	180
JUN										
21...	K36	78	420	93	95	45	190	4.0	6.7	330
JUL										
27...	<1	K22	310	45	70	34	140	3.4	6.9	270
AUG										
10...	66	72	300	27	68	31	130	3.3	8.8	270
SEP										
20...	43	52	340	71	74	38	170	4.0	8.1	270

DATE	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)
OCT									
30...	320	27	.2	8.0	718	734	.98	1130	.00
NOV									
20...	410	27	.3	8.3	939	915	1.28	903	.02
DEC									
18...	670	48	.3	9.7	1460	1440	1.99	930	.22
JAN									
15...	610	53	.4	11	1430	1370	1.94	683	.40
FEB									
13...	690	48	.3	13	1390	1450	1.89	706	.62
MAR									
28...	120	5.0	.2	5.8	257	251	.35	5750	.42
APR									
26...	200	6.3	.2	7.2	446	404	.61	8270	.17
MAY									
23...	260	13	.3	7.5	600	573	.82	3860	.14
JUN									
21...	450	36	.4	8.1	1040	1020	1.41	1090	.01
JUL									
27...	310	26	.3	7.9	758	759	1.03	485	.06
AUG									
10...	290	17	.3	7.1	729	715	.99	1070	.01
SEP									
20...	420	24	.4	5.7	875	903	1.19	581	.09

06174500 MILK RIVER AT NASHUA, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, KJEL-DAHL, TOTAL (MG/L AS N) (00625)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C) (00689)
OCT 30...	.01	.60	.61	.61	.05	.02	5.1	--	--
NOV 20...	.01	.71	.72	--	.06	.02	6.5	--	--
DEC 18...	.22	.47	.69	.70	.04	.02	--	5.5	.3
JAN 15...	.52	.48	1.0	1.0	.04	.03	5.7	--	--
FEB 13...	.30	.33	.63	1.1	.05	.03	5.3	--	--
MAR 24...	.18	.92	1.1	1.1	.15	.03	--	12	.1
APR 26...	.11	2.0	2.1	.85	.06	.04	16	--	--
MAY 23...	.03	.88	.91	.47	.18	.02	9.3	--	--
JUN 21...	.01	.64	.65	.10	.11	.03	--	9.5	2.0
JUL 27...	.01	.66	.67	.45	.09	.03	6.5	--	--
AUG 10...	.00	.68	.68	.52	.09	.01	7.7	--	--
SEP 20...	.02	.65	.67	.62	.05	.02	--	6.9	.4

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)
DEC 18...	1400	1	1	0	100	1	1	20	0
MAR 24...	1500	9	2	300	0	0	0	30	0
JUN 21...	1400	2	2	100	0	1	1	10	0
SEP 20...	1200	3	3	0	60	0	<1	0	10

DATE	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO) (01037)	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)
DEC 18...	2	2	4	1	380	20	3	0	480
MAR 24...	10	0	40	0	32000	350	36	0	560
JUN 21...	4	2	8	1	1600	10	11	4	200
SEP 20...	0	<3	4	2	750	<10	2	0	140

DATE	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG) (01077)	SILVER, DIS-SOLVED (UG/L AS AG) (01075)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
DEC 18...	190	1.0	--	1	1	10	0	20	30
MAR 24...	70	1.4	.3	2	1	0	0	140	20
JUN 21...	20	.2	--	1	1	0	0	30	20
SEP 20...	10	.1	.1	1	0	0	0	10	<3

06174500 MILK RIVER AT NASHUA, MT-- Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	738	1220	1700	1920	1950	1910	512	648	952	1200	1160	1170
2	752	1200	1710	1740	1950	1910	516	682	965	1280	1140	1160
3	742	1260	1710	1890	1960	1880	527	681	961	1030	1100	1200
4	749	1290	1720	1950	1940	1870	538	684	984	1320	1100	1210
5	756	1330	1720	1950	1950	1860	549	698	1020	1000	1080	1220
6	756	1380	1730	1970	1950	1860	578	731	1000	1080	1040	1220
7	760	1380	1740	1980	1960	1860	610	690	1040	882	1040	1220
8	762	1390	1740	1970	1960	1850	642	710	1070	974	1040	1230
9	769	1370	1800	1990	1950	1830	655	767	1140	972	1030	1250
10	829	1190	1800	2020	1940	1820	487	781	1130	971	1080	1250
11	829	1290	1810	1920	1950	1850	425	624	1070	673	1040	1260
12	857	1360	1870	2020	1950	1830	438	771	1060	696	996	1270
13	879	1190	1920	2020	1970	1830	434	826	1090	845	1000	1280
14	905	1170	1960	2000	1970	1820	457	873	1130	1000	1020	1240
15	934	1220	1970	2000	1980	1460	471	852	1160	1320	1030	1300
16	1000	1280	1970	1980	1980	1070	492	901	1200	1090	1060	1300
17	995	1330	1980	1960	2000	1070	522	940	1240	1080	1070	1300
18	1040	1320	1980	1910	1990	1270	544	925	1280	1080	1100	1290
19	1100	1330	1980	1950	1990	742	547	959	1310	1060	1140	1290
20	1100	1310	1930	1950	2010	441	509	948	1350	1030	1150	1270
21	1120	1370	1940	1940	2010	501	508	928	1400	992	1150	1260
22	1210	1370	1950	1940	1970	462	469	921	1460	989	1160	1280
23	1210	1400	1920	1950	1970	436	497	911	1340	994	1160	1300
24	1190	1460	1920	1950	1970	409	541	912	1300	1020	1150	1300
25	1200	1470	1880	1920	1920	416	572	955	1300	1060	1160	1300
26	1420	1500	1880	1950	1920	409	637	954	1300	1080	1160	1310
27	1420	1520	1870	1950	1930	442	706	953	1270	1110	1170	1320
28	1520	1540	1900	1950	1930	462	725	958	1220	1120	1220	1320
29	1220	1540	1900	1870	---	461	724	970	1220	1130	1320	1320
30	1120	1550	1920	1960	---	464	685	971	1250	1140	1160	1320
31	1120	---	1930	1950	---	472	---	970	---	1160	1140	---
MEAN	1000	1350	1860	1950	1960	1190	551	853	1170	1050	1110	1270

WTR YR 1979 MEAN 1270 MAX 2020 MIN 409

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15.0	6.0	.0	.0	.0	.0	2.0	9.0	18.0	23.5	24.5	20.0
2	14.0	6.5	.0	.0	.0	.0	2.0	9.0	18.0	23.5	24.5	20.0
3	12.5	7.0	.0	.0	.0	.0	2.0	9.0	19.5	23.5	24.5	20.5
4	12.5	7.5	.0	.0	.0	.0	2.0	8.5	19.5	---	24.0	21.0
5	---	5.5	.0	.0	.0	.0	1.5	9.0	18.0	23.0	23.5	20.5
6	11.0	5.0	.0	.0	.0	.0	1.5	9.0	18.5	---	23.5	19.5
7	11.0	5.0	.0	.0	.0	.0	2.0	8.0	17.0	24.0	24.0	19.0
8	11.0	5.5	.0	.0	.0	.0	2.5	7.5	17.5	24.0	24.0	19.5
9	10.5	4.0	.0	.0	.0	.0	3.0	7.5	17.0	24.5	23.0	20.0
10	---	3.0	.0	.0	.0	.0	3.5	7.5	18.0	24.5	22.0	19.5
11	---	2.0	.0	.0	.0	.0	5.5	7.5	18.0	24.5	22.0	17.0
12	11.5	1.0	.0	.0	.0	.0	3.5	8.5	20.0	24.0	21.5	16.0
13	10.0	1.0	.0	.0	.0	.0	3.5	10.0	21.5	23.5	21.0	15.0
14	9.5	.5	.0	.0	.0	.0	3.5	11.0	21.0	23.0	19.5	14.5
15	10.0	.5	.0	.0	.0	.0	4.0	12.0	19.5	22.5	18.5	16.0
16	10.0	.5	.0	.0	.0	.0	4.0	13.5	19.5	21.5	19.5	16.0
17	10.5	.0	.0	.0	.0	.0	5.0	13.0	19.5	22.0	20.0	17.0
18	9.5	.0	.0	.0	.0	.0	7.5	13.5	19.0	23.0	21.5	16.0
19	9.0	.0	.0	.0	.0	.0	8.5	13.5	19.5	23.5	22.5	16.5
20	9.0	.0	.0	.0	.0	.0	9.0	14.0	20.0	24.0	22.0	16.0
21	9.0	.0	.0	.0	.0	.0	9.0	14.5	20.0	25.0	22.5	16.0
22	9.5	.0	.0	.0	.0	.0	9.0	14.5	20.5	25.0	22.5	16.5
23	8.0	.0	.0	.0	.0	.0	8.0	14.5	20.0	25.0	22.0	15.0
24	9.0	.0	.0	.0	.0	.0	6.0	16.0	20.5	25.0	21.0	15.0
25	6.0	.0	.0	.0	.0	1.0	8.5	17.5	21.5	24.0	20.5	15.0
26	7.0	.0	.0	.0	.0	2.0	8.5	18.0	22.0	22.0	20.5	15.5
27	6.5	.0	.0	.0	.0	1.0	8.0	19.0	23.0	23.0	21.0	15.0
28	6.0	.0	.0	.0	.0	2.0	8.5	18.5	22.0	23.0	20.5	16.0
29	7.5	.0	.0	.0	---	2.0	9.0	17.5	23.0	24.0	20.5	16.0
30	7.5	.0	.0	.0	---	2.5	9.0	17.5	24.0	23.5	21.0	16.0
31	6.5	---	.0	.0	---	2.5	---	17.5	---	24.0	21.5	---
MEAN	9.5	2.0	.0	.0	.0	.5	5.5	12.5	20.0	23.5	22.0	17.0

WTR YR 1979 MEAN 9.5 MAX 25.0 MIN .0

06174500 MILK RIVER AT NASHUA, MT--Continued

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPERATURE (DEG C) (00010)	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70340)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT									
30...	1500	6.0	562	56	41	--	--	--	96
NOV									
20...	1400	.5	356	46	44	--	--	--	98
DEC									
18...	1400	.0	236	44	28	--	--	--	89
JAN									
15...	1500	.0	177	6	2.9	--	--	--	93
FEB									
13...	1400	.0	188	42	21	--	--	--	58
MAR									
24...	1500	.5	8280	1170	26200	78	92	100	--
APR									
26...	1500	8.0	6670	1120	20400	--	--	--	99
MAY									
23...	1400	16.0	2380	239	1540	--	--	--	99
JUN									
21...	1400	21.5	387	110	115	--	--	--	96
JUL									
27...	1300	23.0	237	122	78	--	--	--	96
AUG									
10...	0900	21.5	541	133	194	--	--	--	96
SEP									
20...	1200	16.5	246	73	48	--	--	--	96

DATE	TIME	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	BAROMETRIC PRESSURE (MM OF HG) (00025)	WEATHER (WMO CODE NUMBER) (00041)
AUG									
09...	1500	1030	8.4	28.0	25.0	7.6	94	713	1
09...	1600	--	--	--	25.0	7.5	93	--	--
09...	1700	--	--	--	25.0	7.6	94	--	--
09...	1800	1100	8.4	25.0	25.0	7.6	94	713	1
09...	1900	--	--	--	25.0	7.5	93	--	--
09...	2000	--	--	--	25.0	7.5	93	--	--
09...	2100	--	--	--	22.5	7.4	91	--	--
09...	2200	1090	8.3	18.0	22.5	7.4	91	714	0
09...	2300	--	--	--	22.5	7.3	89	--	--
09...	2400	--	--	--	22.5	7.3	89	--	--
10...	0100	--	--	--	22.0	7.3	88	--	--
10...	0200	--	--	--	22.0	7.3	88	--	--
10...	0300	--	--	--	22.0	7.3	88	--	--
10...	0400	--	--	--	22.0	7.3	88	--	--
10...	0500	1090	8.2	11.0	21.5	7.2	86	715	0
10...	0600	--	--	--	21.5	7.2	86	--	--
10...	0700	--	--	--	21.5	7.2	86	--	--
10...	0800	--	--	--	21.5	7.2	86	--	--
10...	0900	1100	8.3	18.0	21.5	7.2	86	715	0
10...	1000	--	--	--	21.5	7.4	90	--	--
10...	1100	--	--	--	22.0	7.6	92	--	--
10...	1200	1090	8.3	27.0	22.5	7.8	95	715	0
10...	1300	--	--	--	22.5	7.9	96	--	--
10...	1400	--	--	--	23.0	8.0	99	--	--
10...	1500	1100	8.4	30.0	23.0	8.1	100	714	0

06174500 MILK RIVER AT NASHUA, MT--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

PERIPHYTON

DATE	TIME	LENGTH OF EXPOSURE (DAYS) (00022)	PERIPHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M (00573)	PERIPHYTON BIOMASS ASH WEIGHT G/SQ M (00572)	CHLOR-A PERIPHYTON CHROMOGRAPHIC FLUOROM (MG/M2) (70957)	CHLOR-B PERIPHYTON CHROMOGRAPHIC FLUOROM (MG/M2) (70958)	BIOMASS CHLOROPHYLL RATIO PERIPHYTON (UNITS) (70950)
SEP 20...	1200	41	66.9	50.1	1.46	.162	11510

PHYTOPLANKTON

DATE	NOV 20,78	MAR 24,79	JUN 21,79	JUL 27,79	AUG 10,79	SEP 20,79
TIME	1400	1500	1400	1300	0900	1200
TOTAL CELLS/ML	5800	210	140000	6200	5200	40000
DIVERSITY: DIVISION	1.9	0.0	0.3	1.3	1.6	1.3
.CLASS	1.9	0.0	0.3	1.3	1.6	1.3
..ORDER	2.3	0.0	0.3	1.7	2.2	1.5
...FAMILY	2.6	0.0	0.4	3.0	2.8	2.6
....GENUS	2.8	0.0	0.4	3.6	3.1	3.6

ORGANISM	CELLS /ML	PERCENT	CELLS /ML	PERCENT	CELLS /ML	PERCENT	CELLS /ML	PERCENT	CELLS /ML	PERCENT	CELLS /ML	PERCENT
CHLOROPHYTA (GREEN ALGAE)												
.CHLOROPHYCEAE												
..CHLOROCOCCALES												
...CHARACIACEAE												
....SCHROEDERIA	--	-	--	-	--	-	--	-	77	1	--	-
...CHLOROCOCCACEAE												
....CHLOROCOCCUM	--	-	--	-	--	-	--	-	--	-	1100	3
...COELASTRACEAE												
....COELASTRUM	--	-	--	-	--	-	460	7	--	-	--	-
...HYDRODICTYACEAE												
....PEDIASTRUM	--	-	--	-	--	-	720	12	--	-	--	-
...MICRACTINIACEAE												
....GOLENKINIA	--	-	--	-	--	-	--	-	--	-	*	0
....MICRACTINIUM	280	5	--	-	*	0	--	-	--	-	--	-
...OOCYSTACEAE												
....ANKISTRODESMUS	1100#	19	--	-	1500	1	*	0	77	1	1600	4
....CHLORELLA	--	-	--	-	--	-	--	-	--	-	6700#	17
....CHODATELLA	47	1	--	-	--	-	--	-	--	-	360	1
....DICTYOSPHAERIUM	--	-	--	-	1400	1	1300#	21	430	6	3600	9
....KIRCHNERIELLA	--	-	--	-	--	-	--	-	--	-	910	2
....OOCYSTIS	--	-	--	-	--	-	93	1	77	1	730	2
....SELENASTRUM	47	1	--	-	--	-	--	-	--	-	--	-
....TETRAEDRON	--	-	--	-	--	-	*	0	--	-	--	-
....TREUBARIA	--	-	--	-	*	0	--	-	120	2	--	-
...SCENEDESMACEAE												
....ACTINASTRUM	--	-	--	-	--	-	190	3	--	-	5800	14
....CRUCIGENIA	--	-	--	-	1000	1	93	1	--	-	2900	7
....SCENEDESMUS	190	3	--	-	*	0	460	7	310	6	--	-
....TETRASTRUM	--	-	--	-	800	1	560	9	460	9	730	2
..TETRASPORALES												
...COCCOMYXACEAE												
....ELAKATOTHRIX	--	-	--	-	*	0	--	-	--	-	--	-
..VOLVOCALES												
...CHLAMYDOMONADACEAE												
....CHLAMYDOMONAS	330	6	--	-	*	0	190	3	39	1	--	-
..ZYGNEMATALES												
...DESMIDIACEAE												
....STAURASTRUM	--	-	--	-	--	-	--	-	--	-	*	0

06174500 MILK RIVER AT NASHUA, MT--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

PHYTOPLANKTON

DATE	NOV 20,78		MAR 24,79		JUN 21,79		JUL 27,79		AUG 10,79		SEP 20,79	
TIME	1400		1500		1400		1300		0900		1200	
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHRYSOPHYTA												
.BACILLARIOPHYCEAE												
..CENTRALES												
...COSCINODISCACEAE												
....CYCLOTELLA	1500#	27	--	-	*	0	440	7	--	-	910	2
....MELOSIRA	--	-	--	-	--	-	280	4	--	-	--	-
....SKELETONEMA	47	1	--	-	--	-	--	-	--	-	--	-
..PENNALES												
...FRAGILARIACEAE												
....ASTERIONELLA	93	2	--	-	--	-	--	-	--	-	--	-
....FRAGILARIA	--	-	--	-	*	0	46	1	--	-	--	-
....SYNEDRA	--	-	--	-	--	-	--	-	39	1	*	0
...NAVICULACEAE												
....GYROSIGMA	--	-	--	-	--	-	*	0	--	-	--	-
....NAVICULA	--	-	210#	100	--	-	--	-	120	2	--	-
...NITZSCHIACEAE												
....NITZSCHIA	93	2	--	-	*	0	790	13	1000#	19	1600	4
CRYPTOPHYTA (CRYPTOMONADS)												
.CRYPTOPHYCEAE												
..CRYPTOMONADALES												
...CRYPTOMONADACEAE												
....CRYPTOMONAS	--	-	--	-	--	-	*	0	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)												
.CYANOPHYCEAE												
..CHROOCOCCALES												
...CHROOCOCCACEAE												
....AGMENELLUM	--	-	--	-	--	-	--	-	--	-	730	2
....ANACYSTIS	--	-	--	-	*	0	440	7	1300#	24	--	-
....GOMPHOSPHAERIA	750	13	--	-	--	-	--	-	--	-	--	-
..HORMOGONALES												
...NOSTOCACEAE												
....ANABAENA	--	-	--	-	*	0	--	-	950#	16	--	-
....ANABAENOPSIS	--	-	--	-	--	-	--	-	--	-	3100	6
...OSCILLATORIACEAE												
....OSCILLATORIA	--	-	--	-	130000#	95	--	-	--	-	--	-
....SCHIZOTHRIX	--	-	--	-	--	-	--	-	--	-	7600#	19
EUGLENOPHYTA (EUGLENOIDS)												
.EUGLENOPHYCEAE												
..EUGLENALES												
...EUGLENACEAE												
....EUGLENA	--	-	--	-	*	0	46	1	190	4	730	2
....PHACUS	--	-	--	-	--	-	*	0	--	-	--	-
....TRACHELOMONAS	1300#	22	--	-	*	0	*	0	39	1	*	0
PYRRHOPHYTA (FIRE ALGAE)												
.DINOPHYCEAE												
..PERIDINIALES												
...GLENODINIACEAE												
....GLENODINIUM	--	-	--	-	--	-	--	-	39	1	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

06175540 PRAIRIE ELK CREEK NEAR OSWEGO, MT

LOCATION.--Lat 47°59'54", long 105°52'02", in SW¼SW¼ sec.13, T.26 N., R.45 E., McCone County, Hydrologic Unit 10060001, on left bank 460 ft (140 m) downstream from bridge on FAS 528, 0.9 mi (1.4 km) upstream from mouth and 4 mi (6 km) south of Oswego.

DRAINAGE AREA.--352 mi² (912 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1975 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 2,180 ft (664 m), from topographic map. Prior to June 5, 1978, at site 385 ft (117 m) upstream at datum 2.00 ft (0.610 m) higher.

REMARKS.--Water-discharge records fair except those for winter period, which are poor. Diversions for irrigation of about 230 acres (931,000 m²) above station of which 170 acres (688,000 m²) is flood irrigated. Some storage in stock ponds upstream.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge 2,980 ft³/s (84.4 m³/s) Mar. 21, 1978, gage height, 5.52 ft (1.682 m), from floodmark, site and datum then in use; maximum gage height, 5.66 ft (1.725 m) June 15, 1978; no flow part of Feb. 22, 1978, result of freezeup, and on many days in February 1979.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 450 ft³/s (12.7 m³/s) and maximums (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 15	unknown	unknown		a*undetermined		Apr. 17	2145	499	14.1	3.69	1.125
Apr. 9	1900	*1,650	46.7	5.30	1.615						

a - backwater from ice jams.

No flow Feb. 1-25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.2	3.5	1.5	.20	.00	.05	35	7.0	4.5	2.2	2.0	1.8
2	2.4	3.5	1.3	.20	.00	.05	31	6.8	4.4	2.2	1.8	1.7
3	2.6	3.4	1.0	.10	.00	.10	20	6.8	4.1	2.3	1.7	1.6
4	2.3	3.5	1.2	.10	.00	.10	23	7.0	3.9	2.3	1.7	1.6
5	2.2	3.5	1.6	.10	.00	.40	20	6.6	3.9	2.4	1.8	1.5
6	2.3	4.1	1.6	.10	.00	.80	29	7.0	3.6	2.2	2.0	1.4
7	2.3	4.1	1.4	.20	.00	1.2	230	7.6	3.5	2.1	1.8	1.6
8	2.4	3.9	1.2	.20	.00	1.6	499	8.3	3.8	2.0	2.0	1.6
9	2.4	3.9	1.2	.20	.00	1.2	996	11	3.5	2.1	2.0	1.6
10	2.4	3.7	1.2	.20	.00	.80	848	9.7	3.3	2.1	2.0	1.7
11	2.4	3.5	1.4	.20	.00	3.0	341	8.6	3.3	1.9	2.0	1.9
12	2.6	3.7	1.2	.20	.00	10	182	9.0	3.1	1.6	1.9	1.9
13	2.4	4.0	1.1	.10	.00	40	73	8.0	3.0	1.8	1.6	1.7
14	2.6	4.5	1.1	.10	.00	155	202	7.9	2.8	1.7	1.5	1.7
15	2.6	5.0	1.4	.10	.00	140	301	7.5	2.9	1.7	1.6	1.6
16	2.7	5.1	1.2	.10	.00	200	254	6.6	2.8	1.9	1.6	1.6
17	2.7	4.5	1.0	.10	.00	360	448	6.4	2.6	1.9	1.5	1.5
18	2.9	4.7	.80	.10	.00	580	315	[illegible].4	2.6	1.9	1.4	1.5
19	2.9	4.0	.70	.10	.00	520	119	[illegible]3	2.8	1.8	1.5	1.5
20	3.0	3.0	.60	.20	.00	500	40	6.1	2.6	1.8	1.4	1.5
21	2.9	2.5	.40	.20	.00	500	20	5.7	2.6	1.6	1.4	1.6
22	3.0	2.0	.60	.20	.00	510	12	5.4	2.6	1.8	1.4	1.6
23	3.0	2.2	.60	.10	.00	510	42	5.2	2.6	2.4	1.4	1.6
24	3.0	2.5	.40	.10	.00	540	123	5.2	2.5	2.2	1.4	1.6
25	2.9	2.5	.30	.20	.00	570	123	5.0	2.3	2.1	1.5	1.6
26	3.1	2.5	.20	.20	.05	490	29	4.9	2.3	3.4	1.6	1.6
27	3.1	1.9	.20	.20	.05	300	15	4.5	2.5	3.9	1.6	1.6
28	3.3	1.9	.20	.20	.05	197	10	4.7	2.8	3.0	1.6	1.6
29	3.4	1.8	.20	.10	---	115	8.6	5.2	2.6	2.5	1.7	1.6
30	3.4	1.6	.20	.10	---	36	7.6	5.0	2.3	2.3	1.6	1.6
31	3.5	---	.20	.10	---	48	---	4.7	---	2.2	1.7	---
TOTAL	84.9	100.5	27.20	4.60	.15	6330.30	5396.2	206.5	92.1	67.5	51.9	48.5
MEAN	2.74	3.35	.88	.15	.005	204	180	6.66	3.07	2.18	1.67	1.62
MAX	3.5	5.1	1.6	.20	.05	580	996	11	4.5	3.9	2.0	1.9
MIN	2.2	1.6	.20	.10	.00	.05	7.6	4.5	2.3	1.6	1.4	1.4
AC-FT	168	199	54	9.1	.3	12560	10700	410	183	134	103	96

CAL YR 1978 TOTAL 19112.35 MEAN 52.4 MAX 1800 MIN .10 AC-FT 37910
WTR YR 1979 TOTAL 12410.35 MEAN 34.0 MAX 996 MIN .00 AC-FT 24620

06175540 PRAIRIE ELK CREEK NEAR OSWEGO, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1976 to September 1979 (discontinued).

REMARKS.--Scheduled sampling not possible during periods of no flow.

REVISIONS.--The concentrations of dissolved cadmium and dissolved lead for June 5, 1978 (1400 hours) were found in error and have been deleted.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	OXYGEN DEMAND, BIOCHEMICAL, 5 DAY (MG/L) (00310)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)
OCT												
23...	1100	2.9	0	2110	8.7	16.0	8.0	11.4	101	--	150	0
NOV												
16...	1300	5.1	0	2750	8.5	1.0	.0	13.5	97	--	170	0
DEC												
14...	1200	1.1	3	2800	8.4	1.0	.0	12.6	91	--	200	0
JAN												
09...	1200	E.20	3	2320	8.0	-13.0	.0	--	--	--	270	0
MAR												
30...	1200	55	0	590	8.2	3.0	1.5	12.2	91	--	110	0
APR												
10...	1200	794	3	320	8.0	10.0	5.0	10.6	88	--	56	0
18...	1500	273	--	--	--	--	--	--	--	2.3	--	--
MAY												
14...	1200	8.0	0	3000	8.6	14.5	16.5	9.0	95	--	420	0
JUN												
06...	1300	3.6	0	2460	8.7	21.0	22.0	--	--	--	180	0
JUL												
12...	1300	2.0	3	2620	8.7	21.5	24.5	8.9	110	--	140	0
AUG												
13...	1330	1.7	0	2650	8.8	20.5	22.0	9.3	102	--	130	0
SEP												
13...	1230	2.0	1	2680	8.6	18.0	15.5	10.2	105	--	120	0

DATE	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY (MG/L AS CACO3) (00410)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	BROMIDE DISSOLVED (MG/L AS BR) (71870)	IODIDE, DISSOLVED (MG/L AS I) (71865)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)
OCT												
23...	30	17	470	17	6.1	620	530	7.5	.7	.4	.01	10
NOV												
16...	32	21	590	20	4.8	810	630	8.5	.8	--	--	9.9
DEC												
14...	40	24	650	20	6.4	850	690	8.9	.9	.1	.02	11
JAN												
09...	63	28	430	11	7.0	470	750	5.8	.4	--	--	12
MAR												
30...	27	9.3	82	3.5	6.5	150	120	7.2	.1	.0	.00	6.9
APR												
10...	14	5.0	41	2.4	4.4	78	60	2.3	.1	.0	.00	5.5
18...	--	--	--	--	--	--	--	--	--	--	--	--
MAY												
14...	70	60	570	12	7.7	460	1100	16	.5	--	--	5.7
JUN												
06...	29	27	500	16	6.1	630	650	7.8	.7	.1	.00	7.4
JUL												
12...	20	23	550	20	7.1	650	580	7.9	.8	--	--	3.7
AUG												
13...	19	20	610	23	5.9	790	670	8.4	1.0	--	--	7.6
SEP												
13...	19	18	600	24	5.6	810	670	6.8	1.1	.1	.00	9.5

06175540 PRAIRIE ELK CREEK NEAR OSWEGO, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITROGEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC DISSOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUSPENDED TOTAL (MG/L AS C) (00689)	BORON, DISSOLVED (UG/L AS B) (01020)	IRON, DISSOLVED (UG/L AS FE) (01046)
OCT												
23...	1450	1.97	11.4	.02	.02	.33	.35	.02	2.8	--	460	30
NOV												
16...	1780	2.42	24.5	.19	.01	.39	.40	.03	--	--	550	20
DEC												
14...	1940	2.64	5.76	.09	.05	.26	.31	.02	5.4	.1	600	50
JAN												
09...	1580	2.15	.85	.04	.04	.19	.23	.02	--	--	300	20
MAR												
30...	349	.47	51.8	.31	.10	.52	.62	.12	9.7	--	100	120
APR												
10...	180	.24	386	.22	.07	1.7	1.8	.50	49	3.1	130	500
18...	--	--	--	--	--	--	--	--	--	--	--	--
MAY												
14...	2110	2.87	45.6	.02	.01	.60	.61	.01	--	--	360	20
JUN												
06...	1610	2.19	15.6	.18	.03	.49	.52	.02	8.8	.6	470	10
JUL												
12...	1580	2.15	6.53	.03	.01	.60	.61	.03	--	--	760	10
AUG												
13...	1820	2.48	8.35	.01	.04	.68	.72	.05	--	--	630	110
SEP												
13...	1820	2.48	9.83	.15	.06	.72	.78	.04	12	.8	730	200

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DISSOLVED (UG/L AS AS) (01000)	BERYLLIUM, TOTAL RECOVERABLE (UG/L AS BE) (01012)	BERYLLIUM, DISSOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD) (01027)	CADMIUM DISSOLVED (UG/L AS CD) (01025)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)	COPPER, DISSOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)
OCT												
23...	1100	1	1	0	0	1	1	0	0	8	5	830
APR												
10...	1200	6	2	0	0	0	4	30	0	48	11	33000
SEP												
13...	1230	4	4	0	0	0	0	20	10	3	2	870

DATE	LEAD, TOTAL RECOVERABLE (UG/L AS PB) (01051)	LEAD, DISSOLVED (UG/L AS PB) (01049)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOVERABLE (UG/L AS HG) (71900)	MERCURY DISSOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI) (01067)	NICKEL, DISSOLVED (UG/L AS NI) (01065)	SELENIUM, TOTAL (UG/L AS SE) (01147)	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)	ZINC, DISSOLVED (UG/L AS ZN) (01090)
OCT												
23...	2	0	100	20	.4	.2	7	4	0	0	10	10
APR												
10...	19	6	700	20	.3	.1	47	12	2	0	130	10
SEP												
13...	4	0	100	20	.6	--	6	4	1	0	0	10

06175540 PRAIRIE ELK CREEK NEAR OSWEGO, MT--Continued

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPER-ATURE (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)
OCT					
23...	1100	8.0	2.9	114	.89
NOV					
16...	1300	.0	5.1	57	.78
DEC					
14...	1200	.0	1.1	64	.19
JAN					
09...	1200	.0	E.20	115	.06
MAR					
30...	1200	1.5	55	196	29
APR					
10...	1200	5.0	794	1070	2290
MAY					
14...	1200	16.5	8.0	50	1.1
JUN					
06...	1300	22.0	3.6	44	.43
JUL					
12...	1300	24.5	2.0	69	.37
AUG					
13...	1330	22.0	1.7	94	.43
SEP					
13...	1230	15.5	2.0	104	.56

06177000 MISSOURI RIVER NEAR WOLF POINT, MT

LOCATION.--Lat 48°03'57", long 105°32'12", in SW¼NW¼ sec.28, T.27 N., R.48 E., McCone County, Hydrologic Unit 10060001, on right bank 500 ft (150 m) downstream from bridge on State Highway 13, 5 mi (8 km) southeast of Wolf Point, 7.8 mi (12.6 km) downstream from Wolf Creek, and at mile 1,701.4 (2,737.6 km).

DRAINAGE AREA.--82,290 mi² (213,131 km²).

PERIOD OF RECORD.--September 1928 to current year.

REVISED RECORDS.--WSP 1146: 1931. WSP 1729: Drainage area.

GAGE.--Water-stage recorder and nonrecording gage. Datum of gage is 1,958.57 ft (596.972 m) National Geodetic Vertical Datum of 1929. Prior to Apr. 13, 1930, nonrecording gages at Wolf Point ferry landing 5.5 mi (8.8 km) upstream at different datum.

REMARKS.--Records good except those for winter period, which are fair. Flow partly regulated by Fort Peck Lake and many other reservoirs above station. Diversions for irrigation of about 1,010,400 acres (4,090 km²) above station. Several observations of water temperature were made during the year and are available in files of Helena district office.

AVERAGE DISCHARGE.--11 years (1928-39, prior to Fort Peck Lake reaching operational level), 7,219 ft³/s (204.4 m³/s), 5,230,000 acre-ft/yr (6.45 km³/yr); 36 years (1943-79, after operational level was reached), 10,640 ft³/s (301.3 m³/s) 7,709,000 acre-ft/yr (9.51 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 66,800 ft³/s (1,890 m³/s) Mar. 25, 1939, gage height, 14.4 ft (4.39 m), ice present, from rating curve extended above 39,000 ft³/s (1,100 m³/s); maximum gage height, 15.64 ft (4.767 m) Mar. 27, 1960 (backwater from ice); minimum daily discharge, 320 ft³/s (9.06 m³/s) Dec. 10, 1941.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 14, 1908, reached a stage of about 20 ft (6.1 m), present site and datum.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 34,900 ft³/s (988 m³/s) Apr. 26, gage height, 9.01 ft (2.746 m); maximum gage height, 12.98 ft (3.956 m) Dec. 21 (backwater from ice); minimum daily discharge, 8,230 ft³/s (233 m³/s) Sept. 12.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15700	12900	13200	14000	15100	15500	20000	31500	15200	13700	14600	9890
2	15700	12500	12200	14000	15400	15600	20000	31000	15000	13700	14700	10200
3	15500	12100	12300	12300	15400	15800	19700	30500	15100	13600	14900	10000
4	15500	12200	12200	11500	15400	15800	17800	31700	15000	13500	14900	10200
5	15300	13000	12100	11400	15400	15800	17000	31100	15000	13600	15000	10000
6	15100	13300	11700	11500	15400	15800	17000	30100	14200	13700	15400	10100
7	14300	13200	11500	11500	15400	15600	17500	29800	13900	14200	15400	9760
8	14700	11800	11400	11500	15400	15500	17400	29800	13700	15800	15200	9550
9	15000	13300	11500	11500	15600	15500	19600	29500	13600	16400	15200	8580
10	15000	13700	11600	11400	15400	15600	22500	28500	13700	15800	15100	8660
11	14700	14000	11600	11400	15300	15800	24000	27100	13800	15400	15100	8660
12	14500	14100	11500	11300	15300	15700	25000	25200	13900	14900	15000	8230
13	14600	14200	11400	11300	15400	15700	25600	23700	13800	14600	14600	8530
14	14500	13900	10800	11400	15300	14800	26000	21600	13500	14200	14700	8480
15	14600	14000	11600	11800	15400	14600	24300	19400	13300	14300	14800	8660
16	14600	14200	11400	12500	15400	12200	24300	18000	13100	14400	14100	8710
17	15200	14300	11600	13000	15400	10600	26400	17300	12800	13800	13900	8400
18	14500	14300	11700	13600	15300	11200	30200	16600	12800	14200	13700	8610
19	14600	14400	11700	14100	15300	11600	32700	16600	13000	14100	12800	8500
20	14700	14500	11600	14600	15300	11900	30100	16500	13200	14100	11500	8500
21	14600	14500	11700	14800	15300	12000	30500	16400	13300	13600	11900	8610
22	14300	14400	11700	14900	15300	13000	30100	16200	13300	14000	12000	8660
23	14500	14400	11700	14900	15300	14000	32300	15500	13300	14100	11600	8630
24	14700	14400	11600	14900	15500	15000	33200	15900	13300	13900	11700	8650
25	14600	14400	11600	14400	15400	16000	33500	15700	13300	13700	11700	8790
26	14400	14300	11700	14200	15300	17000	34100	15400	13400	14000	11600	8940
27	14200	14300	12100	14200	15300	19000	34200	16000	13600	14300	11600	8330
28	14300	14500	12300	14900	15300	23000	33000	15800	13700	14600	10900	9230
29	14400	14300	12700	15100	---	21800	32500	15300	13500	14600	9050	8610
30	14400	14200	12900	14700	---	21000	31900	15000	13600	14500	10500	8690
31	13900	---	13700	14500	---	20000	---	14900	---	14000	10000	---
TOTAL	456600	413400	368300	407100	430000	482400	782400	675800	411900	443700	413950	269570
MEAN	14730	13780	11880	13130	15360	15560	26080	21800	13730	14310	13350	8979
MAX	15700	14500	13700	15100	15600	23000	34200	31700	15200	16400	15400	10200
MIN	13900	11800	10800	11300	15100	10600	17000	13700	12800	13500	9050	8230
AC-FT	905700	820000	730500	807500	852900	956800	1552000	1340000	817000	880100	821100	534500

CAL YR 1978 TOTAL 4868500 MEAN 13340 MAX 21900 MIN 7870 AC-FT 9657000
WTR YR 1979 TOTAL 5554920 MEAN 15220 MAX 34200 MIN 8230 AC-FT 11020000

06177000 MISSOURI RIVER NEAR WOLF POINT, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: July to September 1979.

INSTRUMENTATION.--Temperature recorder since July 31, 1979.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum recorded, 16.5°C Sept. 9.

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1				---			14.5	12.0	13.0	14.0	12.5	13.5
2				---			15.0	13.5	14.0	14.5	12.5	13.5
3				---			14.5	12.5	13.0	14.5	12.5	14.0
4				---			13.5	11.5	13.0	14.5	13.5	14.0
5				---			14.0	12.5	13.5	14.0	12.0	13.0
6				---			14.5	13.0	14.0	13.5	11.5	12.5
7				---			14.0	12.5	13.5	13.5	12.0	12.5
8				---			13.5	12.0	13.0	13.5	12.0	13.0
9				---			13.0	12.0	12.5	16.5	12.5	14.5
10				---			13.0	11.0	12.0	14.5	12.5	13.5
11				---			13.5	11.5	12.5	12.5	11.0	11.5
12				---			14.0	12.5	13.0	11.0	10.0	10.5
13				---			13.5	12.0	12.5	11.0	9.5	10.5
14				---			12.0	10.0	10.5	11.5	10.0	11.0
15				---			11.5	9.0	10.0	13.0	11.0	12.0
16				---			14.0	11.5	12.5	13.5	12.0	12.5
17				---			13.5	12.0	13.0	13.5	12.0	13.0
18				---			13.0	11.0	12.0	13.0	11.5	12.5
19				---			13.0	11.0	12.0	12.5	11.0	12.0
20				---			14.0	12.0	13.0	12.5	11.0	12.0
21				---			14.5	12.5	13.5	12.0	10.5	11.5
22				---			14.5	12.5	13.5	---	---	---
23				---			13.5	12.0	13.0	---	---	---
24				---			13.0	11.0	12.0	---	---	---
25				---			14.0	12.0	13.0	---	---	---
26				---			13.0	11.5	12.5	---	---	---
27				---			12.0	11.0	11.5	---	---	---
28				---			12.0	10.5	11.5	---	---	---
29				---			14.5	12.0	13.0	---	---	---
30				---			14.0	12.0	13.0	---	---	---
31				13.5			14.0	13.0	13.5	---	---	---
MONTH				13.5			15.0	9.0	12.5	16.5	9.5	12.5
YEAR	16.5	9.0	12.5									

REDWATER RIVER BASIN

06177500 REDWATER RIVER AT CIRCLE, MT

LOCATION.--Lat 47°24'51", long 105°34'30", in SW¼SW¼ sec.11, T.19 N., R.48 E., McCone County, Hydrologic Unit 10060002, on left bank at Circle, 1 mi (2 km) upstream from Horse Creek, and at mile 79.6 (128.1 km).

DRAINAGE AREA.--547 mi² (1,417 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April to November 1929, March to November 1930, July 1931 to December 1932, March to June 1933, February to November 1934, April 1935 to December 1936, April 1937 to June 1972, October 1974 to current year. Monthly discharge only for some periods, published in WSP 1309. Prior to October 1967, published as Redwater Creek at Circle.

REVISED RECORDS.--WSP 1006: 1929-30, 1932-33, 1935-39. WSP 1509: 1929, 1934. WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Sharp-crested weir since Sept. 24, 1938. Datum of gage is 2,394.32 ft (729.789 m) National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to June 1, 1941, and Mar. 23, 1943, to Feb. 16, 1948, nonrecording gage at site 0.3 mi (0.5 km) upstream at same datum. June 1, 1941, to Mar. 22, 1943, nonrecording gage at site 200 ft (61 m) upstream at datum 2.8 ft (0.85 m) lower. Feb. 26, 1948, to May 7, 1950, nonrecording gage at site 200 ft (61 m) upstream at present datum.

REMARKS.--Water-discharge records fair except those during winter period, which are poor. Few minor diversions for irrigation of hay meadows above station.

AVERAGE DISCHARGE.--41 years (1931-32, 1935-36, 1937-71, 1975-79), 14.3 ft³/s (0.405 m³/s), 10,360 acre-ft/yr (12.8 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,730 ft³/s (191 m³/s) July 14, 1957, gage height, 12.77 ft (3.892 m); no flow at times most years.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 80 ft³/s (2.27 m³/s) and maximums(*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 25	0600	874	24.8	8.76	2.670	Apr. 10	0600	*1,130	32.0	*9.20	2.804

Minimum daily discharge, 0.10 ft³/s (0.003 m³/s) Feb. 15, 16.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.1	2.0	3.1	.80	.20	.80	124	41	18	2.8	1.0	.24
2	3.7	1.9	2.4	.60	.20	.80	84	39	17	2.7	.87	.24
3	3.9	1.9	2.1	.40	.20	.80	71	37	16	2.5	.75	.24
4	3.1	2.0	2.5	.30	.20	.85	66	35	14	2.5	.67	.21
5	2.9	1.9	2.8	.30	.20	.90	49	33	13	2.3	.65	.21
6	2.9	1.9	2.1	.30	.20	1.1	47	40	11	2.1	.60	.21
7	3.0	1.9	1.7	.30	.20	1.6	135	63	10	2.1	.56	.21
8	2.9	1.9	1.9	.30	.20	1.8	291	64	9.3	1.8	.52	.21
9	2.9	1.8	2.1	.30	.20	2.1	654	50	8.3	2.3	.45	.21
10	3.0	1.8	2.4	.30	.20	2.2	865	44	7.0	2.5	.45	.21
11	3.9	2.3	2.0	.30	.20	2.5	465	40	6.1	2.2	.45	.21
12	3.5	3.2	2.8	.30	.20	2.9	308	38	5.0	2.1	.42	.18
13	3.2	3.9	2.8	.30	.20	3.4	166	35	4.1	2.2	.42	.21
14	3.0	4.1	2.5	.30	.20	4.0	175	33	3.2	2.9	.38	.21
15	2.8	3.5	2.7	.30	.10	6.0	161	32	3.2	2.4	.38	.18
16	2.9	3.3	2.6	.30	.10	22	237	30	3.5	2.1	.45	.18
17	2.8	3.2	2.5	.30	.20	84	386	29	3.1	1.9	.42	.16
18	2.7	3.0	2.4	.30	.30	160	505	27	2.8	1.7	.35	.13
19	2.6	2.8	2.5	.30	.40	145	348	27	3.0	1.5	.32	.16
20	2.3	2.8	2.3	.30	.60	150	208	26	3.0	1.4	.29	.21
21	2.2	2.8	2.3	.30	.60	115	137	25	3.0	1.4	.29	.18
22	2.1	2.8	2.4	.30	.65	125	98	24	3.0	1.1	.29	.18
23	2.0	2.8	2.5	.30	.70	210	73	24	2.9	.96	.27	.18
24	1.9	3.0	2.6	.20	.75	360	68	23	2.7	.83	.24	.18
25	1.9	3.1	2.6	.20	.80	604	68	23	3.4	.79	.24	.21
26	2.0	3.1	2.6	.30	.85	295	62	22	3.4	.79	.27	.21
27	1.9	3.0	2.3	.40	.90	212	54	21	3.4	.83	.29	.18
28	1.9	3.1	2.1	.30	.85	107	49	21	3.5	.83	.29	.21
29	1.9	3.2	2.1	.30	---	78	47	16	3.2	.79	.27	.21
30	1.9	3.3	1.7	.20	---	102	44	16	3.0	.83	.24	.21
31	2.0	---	1.5	.20	---	120	---	17	---	.96	.24	---
TOTAL	83.8	81.1	72.9	9.90	10.60	2960.75	6061	995	192.1	54.11	13.31	5.97
MEAN	2.70	2.70	2.35	.32	.38	95.5	202	32.1	6.40	1.75	.43	.20
MAX	4.1	4.1	3.1	.80	.90	604	865	64	18	2.9	1.0	.24
MIN	1.9	1.8	1.5	.20	.10	.80	44	16	2.7	.79	.24	.13
AC-FT	166	161	145	20	21	5870	12020	1970	381	107	26	12

CAL YR 1978 TOTAL 8738.30 MEAN 23.9 MAX 900 MIN .10 AC-FT 17330
WTR YR 1979 TOTAL 10546.50 MEAN 28.9 MAX 865 MIN .10 AC-FT 20910

06177500 REDWATER RIVER AT CIRCLE, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1975 to current year.

REVISIONS.--The concentrations of dissolved cadmium and dissolved lead for June 8, 1978 (1500 hours) were found in error and have been deleted.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L) (00310)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)
OCT 11...	1315	4.2	2	3620	8.4	14.0	12.0	10.0	99	--	920	490
NOV 13...	1700	3.6	70	4110	8.2	-5.0	.0	12.0	86	--	1100	610
DEC 13...	0930	2.6	0	4990	8.0	-7.0	.0	10.2	73	--	1300	710
JAN 08...	1530	.30	3	4410	7.9	-8.0	.0	7.0	50	--	1100	430
FEB 20...	1500	.60	0	5700	7.7	.0	.0	7.0	51	--	1200	720
MAR 19...	1200	143	3	820	8.0	.0	1.0	12.2	90	4.0	230	120
APR 11...	1100	489	68	1290	8.2	5.0	2.5	11.6	91	--	420	260
MAY 09...	1300	50	3	4000	8.4	5.5	8.5	9.8	88	--	1200	730
JUN 05...	1430	13	3	4500	8.3	21.0	20.5	--	--	--	1300	800
JUL 10...	1430	2.4	0	4600	8.4	30.0	26.0	6.2	81	--	1300	760
AUG 21...	0900	.89	0	4680	8.5	25.0	21.0	6.0	94	--	1100	560
SEP 12...	0900	.18	0	4620	8.4	11.0	14.0	8.0	82	--	860	300

DATE	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	BROMIDE DIS-SOLVED (MG/L AS BR) (71870)	IODIDE, DIS-SOLVED (MG/L AS I) (71865)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)
OCT 11...	120	150	620	8.9	11	430	1800	12	.6	--	--	6.3
NOV 13...	140	180	650	8.6	10	480	1900	19	.5	--	--	6.7
DEC 13...	140	220	790	9.7	15	550	2400	20	.5	.2	.01	8.9
JAN 08...	140	180	760	10	12	660	2000	19	1.0	--	--	13
FEB 20...	140	210	850	11	12	490	2500	17	.7	--	--	12
MAR 19...	40	32	70	2.0	8.6	110	260	3.2	.1	.0	.00	7.3
APR 11...	62	64	120	2.6	7.7	160	480	3.8	.1	--	--	6.7
MAY 09...	69	240	550	7.0	11	430	1900	10	.2	--	--	2.7
JUN 05...	150	220	550	6.7	10	480	2200	17	.4	.2	.00	4.1
JUL 10...	140	220	650	8.0	13	500	2300	17	.7	--	--	4.7
AUG 21...	120	190	800	11	12	520	2300	17	1.0	--	--	5.8
SEP 12...	98	150	800	12	12	560	2200	20	1.1	.2	.00	3.1

06177500 REDWATER RIVER AT CIRCLE, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	SOLIDS, SUM OF CONSTITUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITROGEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C) (00689)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
OCT 11...	2980	4.05	33.8	.01	.02	.81	.83	.02	--	--	800	70
NOV 13...	3200	4.35	31.1	.03	.03	.59	.62	.02	--	--	790	40
DEC 13...	3930	5.34	27.6	.05	.08	.68	.76	.02	16	.3	840	50
JAN 08...	3520	4.79	2.85	.05	.26	.61	.87	.02	--	--	660	30
FEB 20...	4040	5.49	6.54	.14	.26	.44	.70	.00	--	--	750	20
MAR 19...	888	.66	188	.53	.07	.77	.84	.08	11	.8	150	130
APR 11...	841	1.14	1110	.62	.09	.77	.86	.21	--	--	260	90
MAY 09...	3040	4.13	410	.32	.03	.60	.63	.03	--	--	710	10
JUN 05...	3440	4.68	121	.04	.03	.87	.90	.01	14	1.5	730	10
JUL 10...	3650	4.96	23.7	.04	.02	1.8	1.8	.03	--	--	940	30
AUG 21...	3760	5.11	9.04	.01	.05	.39	.44	.14	--	--	910	70
SEP 12...	3620	4.92	1.76	.07	.04	.28	.32	.02	13	.8	820	20

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BERYLLIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYLLIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHROMIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHROMIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)
MAR 19...	1200	2	1	0	0	0	1	10	0	8	1	1100
SEP 12...	0900	3	3	0	0	0	1	20	10	2	0	270

DATE	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGANESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGANESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELENIUM, TOTAL (UG/L AS SE) (01147)	SELENIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
MAR 19...	9	7	60	70	.2	.4	11	7	0	0	20	10
SEP 12...	3	0	50	20	.6	.0	2	0	0	0	20	20

06177500 REDWATER RIVER AT CIRCLE, MT--Continued

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPERATURE (DEG C) (00010)	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT						
11...	1315	12.0	4.2	270	3.1	69
NOV						
13...	1700	.0	3.6	44	.43	--
DEC						
13...	0930	.0	2.6	52	.37	--
JAN						
08...	1530	.0	.30	64	.05	--
FEB						
20...	1500	.0	.60	12	.02	--
MAR						
19...	1200	1.0	145	51	20	97
MAY						
09...	1300	8.5	50	75	10	--
JUN						
05...	1430	20.5	13	78	2.7	--
JUL						
10...	1430	26.0	2.4	216	1.4	--
AUG						
21...	0900	21.0	.89	132	.32	--
SEP						
12...	0900	14.0	.18	96	.05	--

06177520 HORSE CREEK NEAR CIRCLE, MT

LOCATION.--Lat 47°25'29", long 105°36'54", in NW¼NW¼ sec.9, T.19 N., R.48 E., McCone County, Hydrologic Unit 10060002, at road bridge on Fas 252, 1.0 mi (1.6 km) northwest of Circle, and 2.5 mi (4.0 km) upstream from mouth.

DRAINAGE AREA.--101.3 mi² (262.4 km²).

PERIOD OF RECORD.--Water years 1977 to September 1979 (discontinued).

REMARKS.--Scheduled samplings were not possible during periods of no flow.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L) (00310)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)
OCT												
11...	1230	.66	3	5200	8.5	13.0	11.0	8.6	83	--	1200	730
NOV												
14...	0930	.99	0	7200	8.3	-5.0	.0	9.0	65	--	1600	780
MAR												
19...	1400	20	3	1670	7.8	1.0	1.5	9.1	68	5.0	340	140
APR												
11...	1300	126	66	749	8.0	4.0	1.5	11.0	84	--	210	100
MAY												
09...	1100	15	3	3480	8.3	5.5	7.0	9.4	82	--	860	480
JUN												
05...	1300	2.8	3	6150	8.5	21.5	22.0	--	--	--	1100	430
JUL												
10...	1330	1.4	0	7500	9.2	29.0	27.0	10.2	136	--	690	33
AUG												
21...	1000	.05	0	9080	8.8	24.0	21.0	5.8	69	--	2000	1100

DATE	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	BROMIDE DIS-SOLVED (MG/L AS BR) (71870)	IODIDE, DIS-SOLVED (MG/L AS I) (71865)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)
OCT												
11...	89	240	1000	13	15	480	2800	8.8	.2	.2	.00	.1
NOV												
14...	110	320	1400	15	14	810	3700	24	.3	--	--	1.2
MAR												
19...	41	57	230	5.5	9.3	200	590	3.4	.1	.1	.00	8.3
APR												
11...	32	32	76	2.3	6.5	110	250	2.4	.1	--	--	7.7
MAY												
09...	81	160	450	6.7	11	380	1600	5.0	.1	--	--	.1
JUN												
05...	67	220	900	12	10	690	2400	6.4	.4	.0	.00	.5
JUL												
10...	30	150	1500	25	12	660	3800	6.3	.4	--	--	.3
AUG												
21...	47	460	2100	20	22	450	4700	14	.4	.3	.00	.4

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, KJEL-DAHL, TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C) (00689)	BORON, D.S-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
OCT												
11...	4440	6.04	7.91	.00	.01	1.1	1.1	.05	16	.5	1800	50
NOV												
14...	6060	8.24	16.2	.01	.01	.92	.93	.02	--	--	1900	40
MAR												
19...	1060	1.44	57.2	.51	.35	.95	1.3	.14	12	--	380	120
APR												
11...	473	.64	161	.21	.15	.78	.93	.08	--	--	220	130
MAY												
09...	2540	3.45	103	.01	.01	.75	.76	.04	--	--	830	70
JUN												
05...	4040	5.49	30.5	18	.01	3.4	3.4	.02	--	.6	1600	30
JUL												
10...	5900	8.02	22.3	.04	.02	2.0	2.0	.05	--	--	1900	20
AUG												
21...	7920	E10.8	1.07	.01	.13	2.6	2.7	--	64	--	3200	70

06177520 HORSE CREEK NEAR CIRCLE, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS- SOLVED (UG/L AS AS) (01000)	BERYL- LIUM, TOTAL RECOV- ERABLE (UG/L AS BE) (01012)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) (01027)	CADMIUM DIS- SOLVED (UG/L AS CD) (01025)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) (01034)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) (01042)	COPPER, DIS- SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE) (01045)
OCT 11...	1230	5	4	0	0	2	--	0	0	2	1	470
MAR 19...	1400	2	2	0	0	0	1	10	0	10	0	790
AUG 21...	1000	28	27	0	0	0	0	20	10	2	4	280

DATE	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) (01051)	LEAD, DIS- SOLVED (UG/L AS PB) (01049)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) (01055)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) (71900)	MERCURY DIS- SOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI) (01067)	NICKEL, DIS- SOLVED (UG/L AS NI) (01065)	SELE- NIUM, TOTAL (UG/L AS SE) (01147)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) (01092)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)
OCT 11...	16	--	40	50	.1	.1	1	1	0	1	20	20
MAR 19...	8	2	190	200	.2	.3	4	2	0	0	20	10
AUG 21...	4	4	60	30	.5	.7	4	4	0	0	20	20

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPER- ATURE (DEG C) (00010)	STREAM- FLOW, INSTAN- TANEOUS (CFS) (00061)	SEDI- MENT, SUS- PENDED (MG/L) (80154)	SEDI- MENT DIS- CHARGE, SUS- PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT 11...	1230	11.0	.66	113	.20	--
NOV 14...	0930	.0	.99	88	.24	--
MAR 19...	1400	1.5	20	22	1.2	94
MAY 09...	1100	7.0	15	42	1.7	--
JUN 05...	1300	22.0	2.8	42	.52	--
JUL 10...	1330	27.0	1.4	16	.06	--
AUG 21...	1000	21.0	.05	50	.01	--

06177825 REDWATER RIVER NEAR VIDA, MT

LOCATION.--Lat 47°54'07", long 105°12'54", in SW¼ sec.24, T.25 N., R.50 E., McCone County, Hydrologic Unit 10060002, on right bank at downstream side of bridge on FAS Highway 201, 400 ft (122 m) downstream from East Redwater River and 13.7 mi (22.0 km) northeast of Vida post office.

DRAINAGE AREA.--1,974 mi² (5,113 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1975 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 2,100 ft (640 m), from topographic map.

REMARKS.--Water-discharge records fair except those for winter periods, which are poor. Diversions for irrigation of about 4,500 acres (18.2 km²) above station and many stock ponds and small reservoirs on upstream tributaries.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,230 ft³/s (233 m³/s) Apr. 10, 1979, gage height, 8.82 ft (2.688 m); no flow at times most years.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 500 ft³/s (14.2 m³/s) and maximums (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Apr. 10	0500	*8,230	233	*8.82	2.688
Apr. 17	0830	2,670	75.6	5.28	1.609

Minimum daily discharge, 1.5 ft³/s (0.042 m³/s) on several days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25	6.4	11	3.5	1.5	2.0	450	224	76	60	11	7.5
2	21	6.4	9.5	3.0	1.5	2.0	500	208	76	48	9.5	7.5
3	19	6.4	8.5	2.5	1.5	2.0	410	198	73	30	8.5	7.5
4	18	7.4	7.5	2.5	1.5	2.0	385	162	68	25	8.0	7.5
5	15	4.3	7.0	2.5	1.5	2.0	350	154	64	23	8.5	6.2
6	14	4.9	7.0	2.5	2.0	2.0	327	151	58	22	9.5	5.7
7	14	6.4	6.5	2.5	1.5	2.0	427	198	46	22	7.5	5.7
8	14	7.4	7.0	2.5	1.5	2.0	428	231	46	20	8.0	6.6
9	14	7.4	7.0	2.5	1.5	2.5	3040	228	45	22	8.0	7.5
10	15	6.5	7.0	2.5	2.0	2.5	5810	214	41	20	7.0	6.6
11	13	6.0	7.0	2.0	2.0	2.5	2990	198	44	20	7.5	6.6
12	13	6.0	7.5	2.0	1.5	2.5	1580	186	45	17	7.0	5.7
13	12	10	8.0	2.0	1.5	3.0	900	176	45	15	5.5	5.0
14	12	15	8.0	2.0	1.5	3.5	696	168	38	13	5.0	5.0
15	13	15	8.5	2.0	1.5	5.0	676	159	36	12	6.2	5.4
16	14	15	8.5	2.0	1.5	10	1050	154	34	12	7.0	5.7
17	15	15	8.5	2.0	1.5	20	2320	138	32	13	6.6	6.2
18	16	15	8.5	2.0	1.5	40	1920	123	29	14	6.6	5.4
19	16	10	8.5	2.0	1.5	100	1280	121	29	13	7.5	5.7
20	17	10	8.5	2.0	1.5	220	848	114	29	13	7.0	4.6
21	16	10	8.0	2.5	2.0	200	614	111	26	13	7.0	5.4
22	14	10	8.0	2.5	2.0	190	489	102	26	12	7.0	5.0
23	15	15	8.0	2.0	2.0	350	408	96	30	12	5.7	4.6
24	13	15	7.5	2.0	2.0	700	375	94	53	11	6.2	4.6
25	8.6	15	7.0	2.0	2.0	1300	352	94	50	9.5	5.7	4.6
26	7.4	15	6.5	2.0	2.0	850	331	92	38	14	6.2	5.7
27	5.6	15	6.5	2.0	2.0	600	302	88	35	20	6.2	5.0
28	7.4	15	6.0	2.0	2.0	400	286	82	32	18	6.6	5.0
29	7.4	15	5.5	2.0	---	290	252	78	32	14	7.0	4.3
30	5.6	10	5.0	1.5	---	250	241	78	46	12	7.0	4.6
31	5.6	---	4.0	1.5	---	300	---	76	---	12	7.5	---
TOTAL	415.6	315.5	231.5	68.5	47.5	5917.5	30537	4496	1322	581.5	223.3	172.4
MEAN	13.4	10.5	7.47	2.21	1.70	191	1018	145	44.1	18.8	7.20	5.75
MAX	25	15	11	3.5	2.0	1300	5810	231	76	60	11	7.5
MIN	5.6	4.3	4.0	1.5	1.5	2.0	241	76	26	9.5	5.0	4.3
AC-FT	824	626	459	136	94	11740	60570	8920	2620	1150	443	342

CAL YR 1978 TOTAL 32916.90 MEAN 90.2 MAX 2490 MIN .00 AC-FT 65290
WTR YR 1979 TOTAL 44328.30 MEAN 121 MAX 5810 MIN 1.5 AC-FT 87930

06177825 REDWATER RIVER NEAR VIDA, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1976 to current year.

REVISIONS.--The concentrations of dissolved cadmium and dissolved lead for June 9, 1978 (1200 hours) were found in error and have been deleted.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L) (00310)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)
OCT												
23...	1530	16	0	2730	8.6	14.0	8.5	11.0	99	--	480	5
NOV												
14...	1230	15	0	3300	8.4	.0	.0	12.6	90	--	510	0
DEC												
13...	1330	7.9	0	4380	8.1	-3.0	.0	9.8	70	--	720	0
JAN												
10...	1300	2.3	0	4390	7.9	-20.0	.0	10.6	75	--	780	0
FEB												
21...	1100	1.6	3	4000	8.0	-6.0	.0	8.8	63	--	600	0
MAR												
28...	1330	E400	0	1250	8.1	-2.0	1.0	11.6	86	--	310	130
APR												
10...	1700	4560	3	630	7.9	8.0	2.5	9.6	75	--	170	69
18...	1250	1910	--	--	--	--	--	--	--	3.0	--	--
MAY												
10...	1200	223	1	3380	8.5	6.0	8.0	11.0	96	--	710	270
JUN												
06...	1100	54	0	3700	8.6	20.0	17.5	--	--	--	250	0
JUL												
11...	1500	18	3	3400	8.6	29.5	25.5	7.1	91	--	600	93
AUG												
01...	1230	12	0	3500	8.7	32.5	24.5	7.8	96	--	630	130
SEP												
12...	1300	5.8	1	3460	8.6	17.0	14.5	9.4	96	--	470	0

DATE	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	BROMIDE DIS-SOLVED (MG/L AS BR) (71870)	IODIDE, DIS-SOLVED (MG/L AS I) (71865)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)
OCT												
23...	55	82	520	10	9.9	470	1100	13	.5	1.0	3.0	6.1
NOV												
14...	61	87	560	11	8.5	550	1000	21	.5	--	--	7.5
DEC												
13...	90	120	840	14	13	730	1400	15	.5	.1	.00	9.0
JAN												
10...	98	130	900	14	15	650	1800	20	.6	--	--	12
FEB												
21...	89	91	650	12	10	600	1300	13	.4	--	--	12
MAR												
28...	45	47	150	3.7	10	180	450	5.7	.1	.1	.00	7.7
APR												
10...	31	22	60	2.0	6.3	99	190	3.0	.1	.0	.00	5.8
18...	--	--	--	--	--	--	--	--	--	--	--	--
MAY												
10...	88	120	460	7.5	7.8	440	1300	12	.3	--	--	4.4
JUN												
06...	27	44	--	--	3.9	530	1600	19	.5	.1	.00	5.6
JUL												
11...	60	110	580	10	11	510	1200	16	.7	--	--	6.5
AUG												
01...	54	120	680	11	12	500	1400	18	.6	--	--	13
SEP												
12...	42	86	650	13	11	540	1300	14	.6	.1	.00	5.2

06177825 REDWATER RIVER NEAR VIDA, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, KJEL-DAHL, TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C) (00689)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
OCT												
23...	2070	2.82	89.4	.01	.04	.75	.79	.02	11	--	340	60
NOV												
14...	2080	2.83	84.2	.02	.01	.49	.50	.01	--	--	380	50
DEC												
13...	2930	3.98	62.5	.06	.04	.58	.62	.03	9.3	.2	450	40
JAN												
10...	3490	4.75	21.7	.09	.08	.70	.78	.02	--	--	470	40
FEB												
21...	2570	3.50	11.1	.55	.23	.53	.76	.02	--	--	360	30
MAR												
28...	804	1.09	868	.64	.23	.73	.96	.08	12	.9	190	120
APR												
10...	378	.51	4650	.40	.20	2.1	2.3	.38	9.4	--	110	190
18...	--	--	--	--	--	--	--	--	--	--	--	--
MAY												
10...	2260	3.07	1360	1.2	.01	.93	.94	.05	--	--	360	40
JUN												
06...	--	3.02	324	.33	.06	1.0	1.1	.05	16	1.0	170	320
JUL												
11...	2290	3.11	111	.02	.00	.72	.72	.04	--	--	520	10
AUG												
01...	2580	3.51	85.6	.03	.02	.63	.65	.14	--	--	510	0
SEP												
12...	2440	3.32	38.2	.03	.03	.29	.32	.03	9.1	.6	450	20

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)
OCT							
23...	1530	2	0	1	0	7	1900
APR							
10...	1700	6	0	3	20	21	16000
SEP							
12...	1300	3	10	0	20	2	360

DATE	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)
OCT						
23...	2	40	.2	6	0	20
APR						
10...	20	460	.2	20	1	70
SEP						
12...	5	50	.4	4	0	40

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
OCT												
23...	1530	1	0	3	0	5	13	10	.0	3	0	10
DEC												
13...	1330	2	0	2	10	1	8	70	.0	3	1	20
APR												
10...	1700	1	0	1	0	3	0	80	.3	5	0	20
SEP												
12...	1300	2	0	0	10	0	0	20	.0	0	0	10

06177825 REDWATER RIVER NEAR VIDA, MT--Continued

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPER-ATURE (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT						
23...	1530	8.5	16	92	4.0	--
NOV						
14...	1230	.0	15	53	2.1	--
DEC						
13...	1330	.0	7.9	90	1.9	--
JAN						
10...	1300	.0	2.3	24	.15	--
FEB						
21...	1100	.0	1.6	56	.24	--
MAR						
28...	1330	1.0	E400	232	251	94
APR						
10...	1700	2.5	4560	661	8140	99
MAY						
10...	1200	8.0	223	112	67	--
JUN						
06...	1100	17.5	54	58	8.5	--
JUL						
11...	1500	25.5	18	161	7.8	--
AUG						
01...	1230	24.5	12	95	3.1	--
SEP						
12...	1300	14.5	5.8	86	1.3	--

06178000 POPLAR RIVER AT INTERNATIONAL BOUNDARY

(International gaging station)

LOCATION.--Lat 48°59'30", long 105°41'40", in SE¼ sec.6, T.37 N., R.46 E., Daniels County, Hydrologic Unit 10060003, on left bank 0.5 mi (0.8 km) south of international boundary, 1.5 mi (2.4 km) upstream from Coal Creek, and 18.5 mi (29.8 km) northwest of Scobey, Mt.

DRAINAGE AREA.--362 mi² (938 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1931 to current season (seasonal records only for most seasons). Published as Middle Fork Poplar River at international boundary, March 1931 to November 1975.

REVISED RECORDS.--WSP 1389: 1931, 1935-37(M), 1939-40, 1942(M), 1943, 1948(M), 1950(M). WSP 1729: Drainage area.

GAGE.--Water-stage recorder and concrete control since September 1977. Altitude of gage is 2,460 ft (750 m), from topographic map.

REMARKS.--Water discharge records good except those for winter period, which are poor. A few small diversions for irrigation above station.

COOPERATION.--This is one of a number of stations which are maintained jointly by the United States and Canada.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,700 ft³/s (360 m³/s) Apr. 6, 1954, gage height, 10.25 ft (3.124 m), from floodmark, from rating curve extended above 2,500 ft³/s (70.8 m³/s) on basis of slope-area measurement of peak flow; no flow at times.

EXTREMES FOR CURRENT SEASON.--Maximum discharge, 1,880 ft³/s (53.2 m³/s) Apr. 19, gage height, 6.80 ft (2.073 m); no flow Feb. 21 to Mar. 3.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY 1979 TO DECEMBER 1979
MEAN VALUES

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1		---	.00	37	61	26	.78	.05	.15	.21		
2		---	.00	26	54	25	.69	.07	.11	.21		
3		---	.00	17	50	24	.58	.07	.11	.21		
4		---	.07	15	51	21	.40	.07	.13	.21		
5		---	.50	14	51	20	.54	.07	.09	.13		
6		---	.78	13	63	18	.37	.07	.07	.07		
7		---	.95	58	132	16	.36	.07	.05	.13		
8		---	1.1	421	155	16	3.1	.07	.05	.10		
9		---	1.1	875	153	15	2.6	.07	.04	.13		
10		---	1.4	757	123	14	4.2	.07	.10	.07		
11		---	1.8	452	98	13	2.6	.07	.09	.15		
12		---	2.4	379	61	12	1.7	.07	.06	.07		
13		---	3.0	271	69	10	1.0	.07	.04	.18		
14		---	2.7	219	59	8.4	.60	.07	.05	.20		
15		---	3.8	164	53	7.4	.39	.07	.04	.19		
16		---	8.3	239	50	6.7	.34	.07	.06	.21		
17		---	12	872	45	6.1	.25	.06	.08	.28		
18		---	13	1040	42	5.4	.20	.05	.06	.25		
19		---	14	1620	51	4.9	.16	.06	.06	.19		
20		---	16	739	57	4.5	.13	.04	.07	.25		
21		.00	85	399	51	4.0	.10	.04	.08	1.4		
22		.00	120	253	45	4.0	.08	.04	.21	1.8		
23		.00	241	153	41	4.9	.07	.05	.20	1.9		
24		.00	179	122	35	5.0	.10	.05	.21	2.1		
25		.00	141	118	30	3.9	.07	.06	.21	2.0		
26		.00	105	119	27	3.0	.07	.06	.20	2.2		
27		.00	100	114	24	2.4	.08	.06	.24	2.1		
28		.00	96	96	24	2.0	.06	.05	.26	2.1		
29		---	111	84	26	1.6	.08	.05	.26	2.1		
30		---	80	72	25	1.1	.16	.05	.22	2.1		
31		---	54	---	25	---	.07	.10	---	2.1		
TOTAL		---	1394.90	9758	1851	305.3	22.33	1.92	3.60	25.34		
MEAN		---	45.0	325	59.7	10.2	.72	.062	.12	.82		
MAX		---	241	1620	155	26	4.2	.10	.26	2.2		
MIN		---	.00	13	24	1.1	.06	.04	.04	.07		
AC-FT		---	2770	19350	3670	606	44	3.8	7.1	50		

THE SEASON MARCH TO OCTOBER AC-FT 26,500

06178000 POPLAR RIVER AT INTERNATIONAL BOUNDARY--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1964-65, 1976 to current yea .

REMARKS.--Scheduled samplings were not possible during periods of no flow.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)
OCT												
24...	1120	5.8	--	1300	8.4	11.0	7.5	1.5	10.0	93	310	0
NOV												
15...	1050	4.1	0	1300	8.2	-3.0	.5	1.0	10.0	75	350	0
DEC												
14...	0945	E3.0	0	1760	7.7	-.5	.5	1.5	7.3	56	410	0
MAR												
21...	1000	93	2	638	7.9	6.0	.0	17	9.0	67	150	1
26...	1600	106	71	548	8.0	-8.0	.5	12	8.3	63	140	0
APR												
10...	1030	743	2	233	7.8	.5	.5	56	10.8	83	78	0
MAY												
09...	1430	166	3	1180	8.3	11.0	7.5	2.5	10.3	94	340	0
JUN												
21...	1445	3.7	2	1160	8.7	28.0	19.5	3.5	10.6	125	310	0
JUL												
18...	1800	.19	0	2600	8.6	31.0	28.0	2.6	10.0	139	600	0
AUG												
17...	1130	.07	0	1700	8.7	25.0	20.0	3.1	7.7	89	310	0
SEP												
21...	0900	.07	0	2010	8.5	12.0	11.0	6.4	5.9	58	270	0

DATE	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)
OCT											
24...	48	46	210	5.2	8.2	510	240	6.9	.5	7.8	875
NOV											
15...	60	48	190	4.4	7.9	540	200	7.1	.4	13	852
DEC											
14...	70	56	250	5.4	11	670	260	9.6	.5	19	1080
MAR											
21...	24	22	93	3.3	13	150	180	4.6	.1	11	436
26...	25	18	65	2.4	13	150	130	3.2	.1	11	357
APR											
10...	15	9.6	22	1.1	7.6	94	17	2.2	.1	11	142
MAY											
09...	53	50	160	3.8	9.3	440	230	4.5	.3	14	786
JUN											
21...	36	53	170	4.2	8.7	480	260	6.3	.4	.5	765
JUL											
18...	57	110	500	6.9	17	810	710	12	.5	8.6	1900
AUG											
17...	35	55	300	8.0	6.7	580	460	16	.6	5.9	1290
SEP											
21...	26	49	390	10	9.9	660	520	17	.7	10	1420

06178000 POPLAR RIVER AT INTERNATIONAL BOUNDARY--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, KJEL-DAHL, TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P) (00671)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
OCT											
24...	1.19	13.7	.01	.03	.72	.75	.03	.00	--	1300	20
NOV											
15...	1.16	9.43	.01	.02	.38	.40	.02	.01	--	1100	20
DEC											
14...	1.47	8.75	.05	.05	.30	.35	.02	.00	--	1400	30
MAR											
21...	.60	110	.55	.06	1.3	1.4	.26	.20	--	450	150
26...	.49	102	.33	.09	1.4	1.5	.22	.20	--	320	180
APR											
10...	.19	285	.15	.06	1.0	1.1	.21	.00	--	200	230
MAY											
09...	1.07	352	.02	.01	.96	.97	.05	.01	--	700	100
JUN											
21...	1.04	7.64	.01	.02	.51	.53	.02	.00	--	1500	20
JUL											
18...	2.58	.97	.01	.03	1.8	1.8	.11	.05	--	2400	180
AUG											
17...	1.75	.24	.05	.08	.89	.97	.03	.01	--	2000	40
SEP											
21...	1.93	.27	.05	.06	.85	.91	.04	.03	8.9	1900	60

DATE	TIME	ALUM-INUM, TOTAL RECOV-ERABLE (UG/L AS AL) (01105)	ARSENIC TOTAL (UG/L AS AS) (01002)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)
OCT							
24...	1120	300	2	0	1	0	5
APR							
10...	1030	2600	3	0	1	10	6
JUL							
18...	1800	100	6	0	0	10	3

DATE	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)
OCT							
24...	670	7	40	.0	4	0	10
APR							
10...	2300	5	80	.1	8	0	50
JUL							
18...	550	2	50	2.8	3	1	30

06178000 POPLAR RIVER AT INTERNATIONAL BOUNDARY--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	ALUMINUM, DISSOLVED (UG/L AS AL) (01106)	ARSENIC DISSOLVED (UG/L AS AS) (01000)	BERYLLIUM, DISSOLVED (UG/L AS BE) (01010)	CADMIUM DISSOLVED (UG/L AS CD) (01025)	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COPPER, DISSOLVED (UG/L AS CU) (01040)
OCT							
24...	1120	0	1	<1	<1	0	4
DEC							
14...	0945	0	1	<1	<1	10	1
MAR							
26...	1600	80	4	0	0	0	0
APR							
10...	1030	200	5	<1	4	0	4
JUN							
21...	1445	0	2	0	0	0	1
JUL							
18...	1800	0	5	0	0	0	5
SEP							
21...	0900	0	4	0	0	0	1

DATE	LEAD, DISSOLVED (UG/L AS PB) (01049)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MERCURY DISSOLVED (UG/L AS HG) (71890)	NICKEL, DISSOLVED (UG/L AS NI) (01065)	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	VANADIUM, DISSOLVED (UG/L AS V) (01085)	ZINC, DISSOLVED (UG/L AS ZN) (01090)
OCT							
24...	4	20	.0	2	0	.0	<3
DEC							
14...	6	60	.0	3	0	.0	<3
MAR							
26...	0	40	.0	0	0	2.0	10
APR							
10...	0	20	.0	3	0	2.0	10
JUN							
21...	1	10	--	4	0	.0	20
JUL							
18...	0	30	--	1	0	<1.0	30
SEP							
21...	0	20	.2	2	0	1.0	20

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPERATURE (DEG C) (00010)	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)
OCT					
24...	1120	7.5	5.8	76	1.2
NOV					
15...	1050	.5	4.1	46	.51
DEC					
14...	0945	.5	3.0	67	.54
MAR					
21...	1800	.0	93	22	5.5
26...	1600	.5	106	31	8.9
APR					
10...	1030	.5	745	86	173
MAY					
09...	1430	7.5	166	36	16
JUN					
21...	1445	19.5	3.7	17	.17
JUL					
18...	1800	26.0	.19	64	.03
AUG					
17...	1130	20.0	.07	68	.01
SEP					
21...	0900	11.0	.07	70	.01

06178150 POPLAR RIVER NEAR SCOBEY, MT

LOCATION.--Lat 48°52'23", long 105°29'50", in NE¼SE¼ sec.13, T.36 N., R.47 E., Daniels County, Hydrologic Unit 10060004, 200 ft (61 m) upstream from county road crossing, approximately 6 mi (10 km) upstream from mouth and 6.4 mi (10.3 km) northwest of Scobey.

DRAINAGE AREA.--572 mi² (1,480 km²).

PERIOD OF RECORD.--Water years 1975 to September 1979 (discontinued).

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE (DEG C) (00010)	TURBIDITY (NTU) (00076)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	HARDNESS (MG/L AS CACO3) (00900)
OCT 24...	1400	12	60	1320	8.6	7.0	7.0	16	10.5	96	290
NOV 15...	1315	10	0	1450	8.6	-4.0	.5	3.3	11.7	87	330
DEC 14...	1600	5.7	0	2060	7.9	1.0	.5	4.0	8.0	61	470
JAN 16...	1550	E.10	0	2300	7.7	-17.0	.5	2.5	3.2	24	450
MAR 22...	1545	E200	2	411	8.0	4.0	.5	24	9.7	73	120
28...	1725	E150	2	403	8.0	-8.0	.5	26	10.2	76	120
APR 11...	1500	E850	70	168	7.3	1.0	.5	.40	10.8	82	77
MAY 09...	1030	E150	3	1030	8.4	8.0	6.0	7.7	10.4	90	320
JUN 21...	1030	9.3	0	1260	8.6	19.0	19.5	13	7.3	86	340
JUL 19...	2000	E.40	0	1550	8.5	30.0	26.0	--	7.0	93	--
AUG 15...	1730	E.50	0	1640	8.9	27.0	20.0	22	9.2	107	270
SEP 19...	1900	E2.0	0	1950	9.0	18.5	17.5	26	9.0	102	290

DATE	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY (MG/L AS CACO3) (00410)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)
OCT 24...	0	44	43	220	5.7	8.8	460	250	9.1	.5	7.4
NOV 15...	0	50	51	220	5.2	7.6	520	250	10	.5	7.9
DEC 14...	0	77	67	290	5.8	11	750	350	14	.6	15
JAN 16...	0	73	64	420	8.7	12	750	470	25	.7	19
MAR 22...	0	25	14	45	1.8	13	130	80	4.4	.1	11
28...	0	26	14	39	1.5	13	140	65	3.6	.1	11
APR 11...	0	16	9.0	10	.5	8.0	83	14	1.9	.1	7.8
MAY 09...	0	56	44	120	2.9	6.7	400	170	4.7	.3	11
JUN 21...	0	45	55	200	4.7	6.6	510	240	7.7	.5	6.3
JUL 19...	--	--	--	--	--	--	--	--	--	--	--
AUG 15...	0	26	49	310	8.3	9.4	600	350	11	.6	2.4
SEP 19...	0	29	52	390	10	10	660	450	18	.8	2.9

06178150 POPLAR RIVER NEAR SCOBEY, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, KJEL-DAHL, TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P) (00671)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
OCT											
24...	873	1.19	28.3	.01	.01	.76	.77	.05	.01	1400	10
NOV											
15...	911	1.24	24.6	.01	.04	1.3	1.3	.04	.01	1400	10
DEC											
14...	1280	1.74	19.7	.15	.17	.50	.67	.04	.00	1600	30
JAN											
16...	1540	2.09	.42	.30	.35	.95	1.3	.05	.00	1800	30
MAR											
22...	271	.37	146	.90	.07	1.1	1.2	.32	.24	260	200
28...	257	.35	104	.58	.06	1.0	1.1	.22	.14	260	320
APR											
11...	117	.16	269	.15	.08	1.3	1.4	.16	.04	150	580
MAY											
09...	654	.89	265	.01	.02	.79	.81	.04	.01	620	70
JUN											
21...	871	1.18	21.9	.01	.03	.73	.76	.00	.00	1700	20
JUL											
19...	--	--	--	--	--	--	--	--	--	--	--
AUG											
15...	1120	1.52	1.51	.01	.02	.87	.89	.08	.00	1900	30
SEP											
19...	1350	1.84	7.29	.29	.03	1.2	1.2	.05	.04	2200	20

DATE	TIME	ALUM-INUM, TOTAL RECOV-ERABLE (UG/L AS AL) (01105)	ARSENIC TOTAL (UG/L AS AS) (01002)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)
OCT							
24...	1400	600	3	0	6	0	4
APR							
11...	1500	1700	3	0	1	0	19
SEP							
19...	1900	400	5	0	0	10	1

DATE	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)
OCT							
24...	1000	7	60	.0	5	0	10
APR							
11...	2500	33	70	.1	15	0	40
SEP							
19...	460	5	30	.4	5	0	10

06178150 POPLAR RIVER NEAR SCOBEY, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	ALUMINUM, DISSOLVED (UG/L AS AL) (01106)	ARSENIC DISSOLVED (UG/L AS AS) (01000)	BERYLLIUM, DISSOLVED (UG/L AS BE) (01010)	CADMIUM DISSOLVED (UG/L AS CD) (01025)	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COPPER, DISSOLVED (UG/L AS CU) (01040)
OCT 24...	1400	0	2	<1	<1	0	5
DEC 14...	1600	0	2	0	1	0	1
MAR 28...	1725	90	2	0	0	0	0
APR 11...	1500	210	3	0	2	0	2
JUN 21...	1030	0	3	0	0	0	0
SEP 19...	1900	0	4	<1	<1	10	1

DATE	LEAD, DISSOLVED (UG/L AS PB) (01049)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MERCURY DISSOLVED (UG/L AS HG) (71890)	NICKEL, DISSOLVED (UG/L AS NI) (01065)	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	VANADIUM, DISSOLVED (UG/L AS V) (01085)	ZINC, DISSOLVED (UG/L AS ZN) (01090)
OCT 24...	0	6	.0	2	0	.0	<3
DEC 14...	2	50	.1	3	0	.0	20
MAR 28...	2	20	.0	0	0	3.0	10
APR 11...	15	20	.0	5	0	2.2	10
JUN 21...	1	0	--	4	0	.0	10
SEP 19...	0	6	.3	3	0	1.0	<3

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPERATURE (DEG C) (00010)	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)
OCT 24...	1400	7.0	12	94	3.0
NOV 15...	1315	.5	10	72	1.9
DEC 14...	1600	.5	5.7	78	1.2
JUN 21...	1030	19.5	9.3	76	1.9
JUL 19...	2000	26.0	E.40	61	.07
AUG 15...	1730	20.0	E.50	58	.08
SEP 19...	1900	17.5	E2.0	44	.24

06178500 EAST POPLAR RIVER AT INTERNATIONAL BOUNDARY

(International gaging station)

LOCATION.--Lat 49°00'00", long 105°24'30", in SW¼ sec.3, T.1, R.26 W., second meridian, Hydrologic Unit 10060003, on left bank 10 ft (3 m) north of international boundary, 400 ft (122 m) southwest of Canadian East Poplar Port of Entry, 20 mi (32 km) upstream from mouth, and 14 mi (23 km) north of Scobey, Mt.

DRAINAGE AREA.--534 mi² (1,383 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1931 to current year (seasonal records only in most seasons prior to October 1974). Prior to March 1962, published as East Fork Poplar River at international boundary.

REVISED RECORDS.--WSP 1389: 1932, 1939, 1942-43, 1947. WSP 1729: Drainage area.

GAGE.--Water-stage recorder and concrete control since July 1978. Rock and concrete control used July, 1968 to July 1978. Datum of gage is 2,410.92 ft (734.848 m) above mean sea level (International Boundary Survey datum). Prior to Oct. 5, 1953, water-stage recorder at site 80 ft (24 m) upstream at same datum.

REMARKS.--Water-discharge records good except those for winter periods and Apr. 20 to May 13, which are poor. Flow regulated by Morrison Dam at Cookson Reservoir. Several diversions for irrigation above station.

COOPERATION.--This is one of a number of stations which are maintained jointly by Canada and the United States.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,020 ft³/s (114 m³/s) Apr. 23, 1975, gage height, 12.01 ft (3.661 m); maximum gage height, 12.8 ft (3.90 m) Mar. 25, 1943, from floodmark (backwater from ice); no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 357 ft³/s (10.1 m³/s) Mar. 23, gage height, 7.12 ft (2.170 m), backwater from ice; minimum daily, 1.5 ft³/s (0.042 m³/s) Oct. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.5	2.5	2.3	1.8	1.9	2.0	119	139	20	18	3.0	4.0
2	2.1	1.9	2.1	2.0	1.9	2.1	108	133	18	15	3.6	5.0
3	2.1	1.7	2.0	1.9	2.2	2.2	121	119	21	15	3.5	3.8
4	2.6	2.2	2.2	1.9	2.1	2.4	140	94	18	11	3.5	3.9
5	2.3	2.7	2.2	1.9	2.2	2.6	141	77	19	10	3.3	3.7
6	2.3	2.8	2.0	1.9	2.2	2.5	88	65	25	9.0	3.6	3.5
7	2.2	2.7	1.8	1.9	2.2	2.3	46	54	22	8.0	3.6	3.7
8	2.1	2.5	1.9	2.1	2.2	2.2	45	43	16	7.5	3.3	3.8
9	2.1	2.5	1.8	2.2	2.2	2.1	46	35	16	7.1	3.6	4.0
10	2.1	2.3	2.2	2.2	2.0	2.1	45	32	16	5.2	3.5	4.0
11	2.3	2.2	2.2	2.1	2.0	2.3	44	28	16	4.9	3.4	4.3
12	2.5	2.3	2.3	2.1	2.0	2.6	44	25	17	4.9	3.5	4.3
13	2.7	2.4	2.2	2.2	2.0	3.3	42	23	20	5.1	3.4	4.1
14	2.7	2.4	2.3	2.2	2.0	28	43	21	19	7.1	3.2	4.0
15	2.5	2.3	2.3	2.2	1.9	25	44	21	18	9.4	3.2	3.9
16	2.2	2.4	2.3	2.2	1.9	30	46	24	18	5.9	3.4	4.0
17	2.1	2.5	2.2	2.2	1.9	50	78	32	18	4.2	3.3	4.1
18	2.1	2.3	2.2	2.2	1.9	73	199	24	18	3.7	3.2	3.9
19	2.2	2.3	2.2	2.2	1.9	46	253	30	26	3.5	3.1	4.1
20	2.2	2.3	2.2	2.2	1.9	42	269	25	40	3.4	3.2	4.0
21	2.8	2.3	2.2	2.3	1.9	52	264	26	37	3.4	3.1	4.0
22	2.8	2.3	2.2	2.3	1.9	45	262	24	36	3.5	3.1	4.4
23	2.8	2.3	2.2	2.3	1.9	166	267	20	35	3.9	3.0	4.4
24	2.6	2.4	2.2	2.3	2.0	248	270	19	33	3.9	3.1	4.3
25	2.6	2.4	2.3	2.2	2.0	200	251	20	34	4.0	3.1	4.3
26	2.5	2.5	2.3	2.2	2.0	172	229	18	28	3.7	3.6	4.4
27	2.5	2.5	2.3	2.2	2.0	144	207	16	25	3.6	2.9	4.0
28	2.4	2.4	2.3	2.2	2.0	127	185	20	26	3.4	3.1	4.6
29	2.4	2.4	2.0	2.1	---	111	169	20	23	3.6	3.0	4.6
30	2.7	2.3	1.8	2.1	---	119	152	16	19	3.7	3.0	4.6
31	2.5	---	1.7	2.0	---	130	---	18	---	3.6	3.5	---
TOTAL	73.5	71.0	66.4	65.8	56.2	1838.7	4217	1261	697	198.2	101.9	123.1
MEAN	2.37	2.37	2.14	2.12	2.01	59.3	141	40.7	23.2	6.39	3.29	4.10
MAX	2.8	2.8	2.3	2.3	2.2	248	270	139	40	18	3.6	5.0
MIN	1.5	1.7	1.7	1.8	1.9	2.0	42	16	16	3.4	2.9	3.5
AC-FT	146	141	132	131	111	3650	8360	2500	1380	393	202	244

CAL YR 1978 TOTAL 920.20 MEAN 2.52 MAX 7.0 MIN .80 AC-FT 1830
WTR YR 1979 TOTAL 8769.80 MEAN 24.0 MAX 270 MIN 1.5 AC-FT 17390

06178500 EAST POPLAR RIVER AT INTERNATIONAL BOUNDARY--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1964-65, 1975 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: June 1975 to current year.

INSTRUMENTATION.--Temperature recorder since June 17, 1975.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum, 29.5°C July 6, 1975, July 25, 26, 1978; minimum, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum recorded, 27.0°C Aug. 1, 2; minimum, 0.0°C on many days during November to May.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE (DEG C) (00010)	COLOR (PLATINUM COBALT UNITS) (00080)	TURBIDITY (NTU) (00076)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)
OCT											
24...	1630	2.6	80	1470	8.3	6.0	7.5	4	1.4	11.0	102
NOV											
16...	1120	2.4	2	1630	7.8	-3.0	1.0	4	.50	6.4	49
DEC											
14...	1330	3.0	0	1480	7.5	.0	.5	5	.80	5.4	42
JAN											
25...	1050	3.1	2	1480	7.3	-5.0	.0	3	2.7	2.3	17
FEB											
27...	1320	6.3	2	1420	7.3	-13.0	.0	4	2.1	3.5	26
MAR											
15...	1600	25	0	1260	8.3	4.0	1.0	25	3.5	7.5	58
APR											
04...	1230	138	2	1220	8.1	-4.0	2.0	25	3.1	10.8	86
19...	1030	241	2	872	8.2	7.0	2.5	50	7.1	10.7	88
MAY											
17...	1730	35	3	780	8.1	7.0	7.5	40	12	10.4	94
JUN											
20...	1100	40	0	770	8.1	22.0	17.5	55	7.2	7.5	85
JUL											
19...	1300	2.9	0	1100	8.0	32.5	26.0	30	2.9	8.5	113
AUG											
16...	1745	3.3	0	1330	8.5	30.0	21.0	30	5.6	10.1	120
SEP											
20...	1230	4.0	0	1290	8.5	17.0	15.0	20	3.2	10.5	112

DATE	COLIFORM, TOTAL, IMMED. (COLS. PER 100 ML) (31501)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY (MG/L AS CACO3) (00410)
OCT										
24...	K28	<1	390	0	69	52	220	4.9	8.2	510
NOV										
16...	<1	<1	500	0	99	61	220	4.3	8.2	600
DEC										
14...	K9	K6	470	0	93	57	200	4.0	9.6	570
JAN										
25...	<1	<1	450	0	93	52	200	4.1	7.6	550
FEB										
27...	<1	K13	420	0	88	48	200	4.3	9.0	530
MAR										
15...	<1	K280	300	0	50	43	190	4.8	16	450
APR										
04...	--	--	280	0	44	42	180	4.7	17	460
19...	--	--	210	0	36	30	120	3.6	16	310
MAY										
17...	42	48	210	0	39	27	96	2.9	15	270
JUN										
20...	--	K270	210	0	38	27	100	3.0	13	280
JUL										
19...	K17	K8	270	0	45	35	150	3.5	12	390
AUG										
16...	--	--	380	0	63	54	200	4.5	10	450
SEP										
20...	K23	120	330	0	59	45	170	4.1	11	430

06178500 EAST POPLAR RIVER AT INTERNATIONAL BOUNDARY--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)
OCT										
24...	330	6.6	.3	11	1010	1.37	7.09	.19	.02	.21
NOV										
16...	350	7.3	.3	16	1120	1.52	7.26	.28	.02	.30
DEC										
14...	310	6.3	.3	16	1040	1.41	8.42	.24	.01	.25
JAN										
25...	330	6.4	.3	17	1040	1.41	8.70	.20	.00	.20
FEB										
27...	320	7.1	.3	16	1010	1.37	17.2	.22	.00	.22
MAR										
15...	240	7.2	.2	8.8	827	1.12	55.8	.30	.02	.32
APR										
04...	230	7.3	.2	8.2	807	1.10	301	.28	.02	.30
19...	160	5.6	.2	9.2	564	.77	367	.36	.06	.42
MAY										
17...	130	4.7	.2	7.0	480	.65	45.4	.16	.04	.20
JUN										
20...	150	4.6	.2	3.2	506	.69	54.6	.01	.06	.07
JUL										
19...	190	4.5	.3	9.5	665	.90	5.21	--	--	.01
AUG										
16...	320	6.1	.3	9.2	935	1.27	8.33	.22	.02	.24
SEP										
20...	300	5.8	.3	11	862	1.17	9.51	.04	.04	.08

DATE	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, KJEL-DAHL, TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, ORTHO. TOTAL (MG/L AS P) (70507)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	CHLOR-A PHYTO-PLANK-TON CHROMO FLUORUM (UG/L) (70953)	CHLOR-B PHYTO-PLANK-TON CHROMO FLUORUM (UG/L) (70954)
OCT										
24...	.08	.29	.37	.02	.01	--	1900	10	--	--
NOV										
16...	.55	.32	.87	.01	.00	--	2100	10	--	--
DEC										
14...	.66	.18	.84	.02	.01	4.2	1800	30	.654	.000
JAN										
25...	.63	.06	.69	.01	.00	--	1800	10	--	--
FEB										
27...	.87	.12	.99	.01	.00	--	1800	50	--	--
MAR										
15...	.29	.91	1.2	.10	.08	13	1400	20	.541	.102
APR										
04...	.25	.85	1.1	.10	.10	--	1400	20	--	--
19...	.24	1.1	1.3	.15	.09	--	940	90	--	--
MAY										
17...	.06	1.0	1.1	.09	.05	--	790	430	--	--
JUN										
20...	.07	.70	.77	.06	.02	14	1100	10	.185	.000
JUL										
19...	.06	.87	.93	.06	--	--	1500	50	--	--
AUG										
16...	.01	.65	.66	.03	.01	--	1800	60	--	--
SEP										
20...	.05	.64	.69	.03	.01	8.3	1500	20	.541	.129

06178500 EAST POPLAR RIVER AT INTERNATIONAL BOUNDARY--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
DEC												
14...	1330	2	10	2	0	0	6	150	.1	3	0	10
MAR												
15...	1600	6	0	0	10	0	2	50	.0	2	1	10
JUN												
20...	1100	3	0	0	0	0	2	70	--	5	0	20
SEP												
20...	1230	5	<1	<1	10	1	0	20	--	2	0	<3

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	14.5	12.0	13.0	4.5	3.0	4.0	.0	.0	.0	.0	.0	.0
2	12.0	10.0	11.0	5.5	4.0	4.5	.0	.0	.0	.0	.0	.0
3	11.0	9.0	10.0	5.5	4.5	5.0	.0	.0	.0	.0	.0	.0
4	10.0	7.5	9.0	5.5	3.5	5.0	.0	.0	.0	.0	.0	.0
5	8.5	7.0	7.5	3.5	2.0	2.5	.0	.0	.0	.0	.0	.0
6	9.0	6.5	7.5	2.5	2.0	2.5	.0	.0	.0	.0	.0	.0
7	9.5	6.5	8.0	4.5	2.5	3.5	.0	.0	.0	.0	.0	.0
8	10.5	8.0	9.0	5.0	4.0	4.5	.0	.0	.0	.0	.0	.0
9	11.0	8.5	9.5	4.0	1.0	2.5	.0	.0	.0	.0	.0	.0
10	11.0	9.0	10.0	1.0	.5	1.0	.0	.0	.0	.0	.0	.0
11	10.5	9.0	9.5	---	1.0	---	.0	.0	.0	.0	.0	.0
12	8.5	7.0	8.0	---	---	---	.0	.0	.0	.0	.0	.0
13	7.5	6.0	6.5	---	---	---	.0	.0	.0	.0	.0	.0
14	7.5	5.0	6.5	---	---	---	.0	.0	.0	.0	.0	.0
15	8.0	5.5	6.5	---	---	---	.0	.0	.0	.0	.0	.0
16	7.5	5.5	6.5	---	---	---	.0	.0	.0	.0	.0	.0
17	7.0	6.0	6.5	---	---	---	.0	.0	.0	.0	.0	.0
18	7.5	5.0	6.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
19	9.0	6.0	7.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
20	9.0	7.0	8.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
21	8.0	6.5	7.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
22	6.5	5.0	6.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
23	6.5	4.5	5.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
24	7.0	6.0	6.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
25	6.0	5.0	5.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
26	5.5	4.0	5.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
27	5.0	4.0	4.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
28	6.0	4.5	5.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
29	5.5	4.5	5.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
30	4.5	3.5	4.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
31	4.5	3.5	4.0	---	---	---	.0	.0	.0	.0	.0	.0
MONTH	14.5	3.5	7.0	5.5	.0	1.5	.0	.0	.0	.0	.0	.0

06178500 EAST POPLAR RIVER AT INTERNATIONAL BOUNDARY--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	.0	.0	.0	.0	.0	.0	1.0	.0	.5	4.0	2.0	2.5
2	.0	.0	.0	.0	.0	.0	3.0	.0	1.0	5.0	.0	3.5
3	.0	.0	.0	.0	.0	.0	---	---	---	4.5	2.5	3.5
4	.0	.0	.0	.0	.0	.0	3.5	---	---	4.0	3.5	4.0
5	.0	.0	.0	.0	.0	.0	3.5	.0	1.0	3.5	2.5	3.0
6	.0	.0	.0	---	---	---	4.0	.5	2.5	2.5	1.5	2.0
7	.0	.0	.0	---	---	---	4.0	1.5	2.0	4.5	1.0	2.5
8	.0	.0	.0	---	---	---	4.5	1.0	2.5	6.5	2.0	4.5
9	.0	.0	.0	---	---	---	6.0	2.0	4.0	6.5	2.5	4.5
10	.0	.0	.0	---	---	---	5.0	1.5	2.5	6.5	2.5	5.0
11	.0	.0	.0	---	---	---	2.5	2.0	2.0	10.0	5.5	8.0
12	.0	.0	.0	---	---	---	2.0	1.0	1.5	12.5	8.0	10.5
13	.0	.0	.0	---	---	---	3.5	.5	2.0	12.0	10.0	11.0
14	.0	.0	.0	---	---	---	3.5	1.5	2.5	13.0	9.0	11.0
15	.0	.0	.0	---	---	---	3.5	2.0	3.0	14.0	9.5	12.0
16	.0	.0	.0	1.0	---	---	5.0	2.0	3.5	15.5	11.0	13.0
17	.0	.0	.0	1.0	1.0	1.0	4.5	2.5	3.5	10.5	6.5	8.5
18	.0	.0	.0	1.0	.5	1.0	2.5	2.0	2.0	9.0	5.5	7.5
19	.0	.0	.0	.5	.5	.5	2.5	1.5	2.0	9.0	7.5	8.5
20	.0	.0	.0	.5	.5	.5	4.0	1.5	2.5	10.5	7.0	9.0
21	.0	.0	.0	.5	.5	.5	4.0	1.5	2.5	12.5	9.5	11.0
22	.0	.0	.0	.5	.5	.5	4.0	1.5	2.5	11.5	9.5	10.0
23	.0	.0	.0	1.5	.5	1.0	3.0	2.0	2.5	14.0	9.5	11.5
24	.0	.0	.0	3.0	1.0	2.0	2.5	1.5	2.0	16.5	12.0	14.0
25	.0	.0	.0	3.0	2.0	2.0	4.5	1.5	2.5	17.5	14.0	15.5
26	.0	.0	.0	3.0	2.0	2.0	3.5	2.0	2.5	18.0	14.0	16.0
27	.0	.0	.0	2.0	1.0	1.5	5.0	1.5	3.0	18.5	14.5	16.5
28	.0	.0	.0	2.0	.5	1.0	3.5	2.0	2.5	17.0	13.0	15.5
29	---	---	---	3.0	.5	1.5	5.5	1.5	3.0	12.5	11.0	11.5
30	---	---	---	3.5	1.0	2.0	5.5	2.0	3.5	13.5	10.5	12.0
31	---	---	---	1.5	.0	.5	---	---	---	13.0	11.0	12.0
MONTH	.0	.0	.0	3.5	.0	1.0	6.0	.0	2.5	18.5	.0	9.0

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	13.0	11.0	12.0	---	---	---	27.0	24.0	25.5	20.5	17.5	19.0
2	16.0	12.5	14.5	---	---	---	27.0	24.5	25.5	20.5	17.5	19.0
3	17.5	13.5	15.5	---	---	---	26.0	23.0	24.5	21.5	18.0	20.0
4	17.0	15.0	16.0	---	---	---	25.0	22.5	23.5	20.5	18.5	19.5
5	18.0	15.0	16.5	---	---	---	24.5	22.0	23.0	19.0	16.5	17.5
6	16.0	14.0	15.0	---	---	---	25.0	21.5	23.0	18.0	15.5	17.0
7	14.0	10.0	11.5	---	---	---	25.0	22.5	24.0	18.5	15.0	16.5
8	14.0	9.5	11.5	---	---	---	25.0	22.0	23.5	18.5	15.5	17.0
9	16.0	12.5	14.0	---	---	---	---	---	---	18.5	16.5	17.5
10	18.5	13.5	15.5	---	---	---	---	---	---	17.0	14.5	16.0
11	---	---	---	---	---	---	---	---	---	15.0	13.0	14.0
12	---	---	---	---	---	---	---	---	---	13.0	12.0	12.5
13	---	---	---	---	---	---	---	---	---	13.5	11.0	12.5
14	---	---	---	---	---	---	---	---	---	15.0	11.5	13.5
15	---	---	---	---	---	---	---	---	---	16.5	13.0	15.0
16	---	---	---	---	---	---	---	---	---	18.0	14.5	16.5
17	---	---	---	---	---	---	23.0	19.0	21.0	17.0	15.0	16.0
18	---	---	---	---	---	---	23.5	20.5	22.0	16.5	13.5	15.0
19	---	---	---	---	---	---	24.0	21.5	22.5	16.5	14.0	15.5
20	---	---	---	---	---	---	23.0	20.5	22.0	---	14.0	---
21	---	---	---	---	---	---	23.5	20.0	21.5	---	---	---
22	---	---	---	---	---	---	22.5	20.5	21.5	---	---	---
23	---	---	---	---	---	---	22.0	18.5	20.0	---	---	---
24	---	---	---	---	---	---	20.5	18.5	19.0	---	---	---
25	---	---	---	---	---	---	19.5	16.0	18.0	---	---	---
26	---	---	---	---	---	---	20.0	17.0	18.5	---	---	---
27	---	---	---	---	---	---	19.5	17.0	18.5	16.0	---	---
28	---	---	---	---	---	---	20.0	18.0	19.0	15.5	13.5	14.5
29	---	---	---	---	---	---	20.5	18.0	19.0	14.0	12.0	13.0
30	---	---	---	25.0	---	---	20.5	17.5	19.0	12.5	11.5	12.0
31	---	---	---	26.0	22.5	24.0	20.0	18.5	19.0	---	---	---
MONTH	18.5	9.5	14.0	26.0	22.5	24.0	27.0	16.0	21.5	21.5	11.0	16.0
YEAR	27.0	.0	6.0									

NOTE:

06178500 EAST POPLAR RIVER AT INTERNATIONAL BOUNDARY--Continued

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPER-ATURE (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)
OCT					
24...	1630	7.5	2.6	54	.38
NOV					
16...	1120	1.0	2.4	69	.45
DEC					
14...	1330	.5	3.0	62	.50
JAN					
25...	1050	.0	3.1	77	.64
FEB					
27...	1320	.0	6.3	37	.63
MAR					
15...	1600	1.0	25	17	1.1
APR					
04...	1230	2.0	138	72	27
19...	1030	2.5	241	56	36
MAY					
17...	1730	7.5	35	23	2.2
JUN					
20...	1100	17.5	40	10	1.1
JUL					
19...	1300	26.0	2.9	33	.26
AUG					
16...	1745	21.0	3.3	72	.64
SEP					
20...	1230	15.0	4.0	43	.46

06179000 EAST FORK POPLAR RIVER NEAR SCOBEY, MT

LOCATION.--Lat 48°51'08", long 105°25'15", in NE¼NW¼ sec.27, T.36 N., R.48 E., Daniels County, Hydrologic Unit 10060003, on right bank at downstream side of bridge on State Highway 13, 2.5 mi (4.0 km) upstream from mouth, and 4 mi (6 km) north of Scobey.

DRAINAGE AREA.--722 mi² (1,870 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1935 to October 1939 (no winter records some years), June 1975 to current year.

GAGE.--Water-stage recorder. Datum of gage is 2,370.47 ft (722.519 m) National Geodetic Vertical Datum of 1929 (International Boundary Survey datum). Apr. 2, 1935 to Oct. 31, 1939, nonrecording gage on downstream side of old bridge 300 ft (91 m) southeast of present site and at present datum. June 6, 1975 to Aug. 7, 1975, nonrecording gage at present site and datum.

REMARKS.--Water-discharge records fair except those for winter period, which are poor. Flow partially regulated by Coronach Dam, located approximately 2 mi (3 km) north of international boundary, after Sept. 18, 1975. A few small diversions for irrigation above station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge observed, about 2,930 ft³/s (83.0 m³/s) Mar. 22, 1939, gage height, 9.6 ft (2.93 m), from floodmarks (backwater from ice); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Apr. 23, 1975, reached a stage of 6.9 ft (2.10 m), from floodmark, discharge, 3,960 ft³/s (112 m³/s), from rating based on step-backwater analysis at site.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 760 ft³/s (21.5 m³/s) Apr. 18; maximum gage height observed, 5.40 ft (1.646 m) Mar. 25 (backwater from ice); minimum daily discharge, 0.35 ft³/s (0.010 m³/s) Aug. 17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.4	4.6	4.5	3.8	2.9	1.9	150	168	30	23	3.9	1.8
2	2.3	4.4	4.0	3.7	2.7	1.8	160	158	30	18	3.1	1.9
3	2.3	4.4	3.0	3.6	2.8	2.0	180	150	29	17	2.7	1.8
4	2.8	4.6	4.5	3.7	2.9	2.7	160	81	29	14	2.0	2.2
5	3.4	5.2	4.3	4.0	3.1	3.3	130	53	30	14	1.9	2.9
6	3.4	3.9	4.0	3.9	2.9	4.0	150	49	26	10	2.2	2.5
7	3.7	3.1	4.2	3.8	2.5	5.2	110	64	30	8.8	2.0	2.4
8	4.0	3.5	4.5	4.2	2.6	8.0	170	64	34	8.0	2.4	2.5
9	3.9	3.3	4.7	4.0	2.8	7.0	250	73	25	7.3	4.4	2.9
10	4.0	3.2	5.0	3.7	2.7	8.8	300	74	20	6.7	3.7	3.5
11	3.4	3.0	5.5	3.4	2.6	11	260	71	20	7.3	2.5	5.7
12	3.5	3.5	5.0	3.2	2.5	14	210	53	21	7.7	1.6	6.3
13	3.9	4.0	4.7	3.0	2.7	12	190	45	24	6.0	1.4	5.7
14	3.9	3.9	5.0	2.7	2.2	13	170	43	24	4.9	1.5	4.4
15	3.9	3.7	4.7	2.5	1.8	15	160	38	29	4.2	1.2	4.2
16	3.9	3.5	4.5	2.7	1.2	16	300	40	23	3.9	1.0	3.5
17	4.0	3.3	4.3	3.0	1.4	23	450	41	22	5.2	.35	3.3
18	4.4	3.1	4.1	3.2	1.8	30	760	45	21	7.0	.92	3.5
19	4.6	2.8	4.0	3.1	2.0	31	600	43	21	5.2	1.1	3.1
20	4.6	3.0	4.3	3.4	1.8	35	540	43	21	4.2	1.0	3.3
21	4.6	3.0	4.5	3.5	1.6	50	505	40	33	3.3	1.4	4.0
22	4.4	3.0	4.3	3.3	1.8	80	410	35	35	3.1	1.8	4.2
23	4.6	3.2	4.1	3.2	1.6	150	363	35	40	3.3	1.4	5.5
24	4.8	2.9	4.2	3.6	1.8	200	328	30	37	3.9	1.2	6.2
25	5.2	3.7	4.0	3.5	2.2	280	303	30	32	3.3	1.1	6.0
26	5.2	4.6	3.9	3.4	2.3	260	283	30	34	3.9	1.2	5.8
27	4.8	5.4	3.7	3.3	2.1	240	246	28	30	3.5	1.1	5.9
28	4.8	5.6	3.6	3.3	2.0	210	226	28	27	2.7	.92	5.0
29	4.8	5.2	3.4	3.0	---	180	200	29	26	2.9	1.1	4.8
30	4.8	5.2	3.3	3.1	---	170	182	30	24	3.9	1.2	4.6
31	4.8	---	3.7	3.0	---	200	---	30	---	4.6	1.2	---
TOTAL	125.1	115.8	131.5	104.6	63.5	2264.7	8506	1741	827	220.8	54.49	119.4
MEAN	4.04	3.86	.24	3.38	2.27	73.1	284	56.2	27.6	7.12	1.76	3.98
MAX	5.2	5.6	5.5	4.2	3.1	280	760	168	40	23	4.4	6.3
MIN	2.3	2.8	3.0	2.5	1.2	1.8	110	28	20	2.7	.35	1.8
AC-FT	248	230	261	208	126	4490	16870	3450	1640	438	108	237

CAL YR 1978 TOTAL 3940.96 MEAN 10.8 MAX 220 MIN .26 AC-FT 7820
WTR YR 1979 TOTAL 14274.04 MEAN 39.1 MAX 760 MIN .35 AC-FT 28310

06179000 EAST FORK POPLAR RIVER NEAR SCOBEY, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1975 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: October 1975 to September 1979 (discontinued).

INSTRUMENTATION.--Temperature recorder since October 14, 1975.

EXTREMES FOR PERIOD OF DAILY RECORD.
WATER TEMPERATURES: Maximum, 27.5°C July 15, 1978, July 19, 1979; minimum, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum, 27.5°C July 19; minimum, 0.0°C on many days during November to March.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE (DEG C) (00010)	TURBIDITY (NTU) (00076)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	HARDNESS (MG/L AS CACO3) (00900)
OCT											
24...	1830	3.5	60	1420	8.7	3.5	7.5	19	10.3	94	330
NOV											
15...	1600	3.6	0	1730	8.7	-5.0	.5	5.0	11.0	82	390
DEC											
15...	0930	4.6	0	2670	7.9	-6.0	.5	7.3	7.6	58	660
MAR											
16...	1100	15	0	1400	7.7	6.0	1.0	8.0	5.0	39	390
29...	1345	180	2	998	8.2	4.0	.5	13	8.4	64	250
APR											
23...	1650	341	2	781	8.0	3.5	5.0	1.0	10.6	90	190
MAY											
09...	1615	73	3	1020	8.7	4.5	8.5	7.0	13.3	123	200
JUN											
19...	1930	22	2	995	8.8	22.5	22.5	7.9	8.0	101	250
JUL											
20...	1030	4.4	0	980	9.3	29.0	23.5	20	5.0	63	180
AUG											
15...	1500	1.9	0	1290	9.3	26.0	18.0	27	9.3	103	240
SEP											
20...	1930	3.4	0	1580	9.1	16.0	16.0	14	8.5	92	300

DATE	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY (MG/L AS CACO3) (00410)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)
OCT											
24...	0	35	58	240	5.8	9.9	500	340	9.4	.3	3.8
NOV											
15...	0	47	67	250	5.5	9.3	570	360	9.6	.3	4.6
DEC											
15...	0	100	100	380	6.4	16	840	610	16	.3	14
MAR											
16...	0	74	51	200	4.4	11	520	280	7.8	.3	16
29...	0	46	34	140	3.8	18	340	210	6.6	.2	9.3
APR											
23...	0	32	26	91	2.9	14	260	140	4.6	.2	10
MAY											
09...	0	46	36	140	3.8	10	320	230	5.3	.2	7.1
JUN											
19...	0	38	37	140	3.9	12	350	200	5.4	.2	.0
JUL											
20...	0	18	33	160	5.2	12	320	230	6.6	.2	1.8
AUG											
15...	0	22	44	230	6.5	12	420	330	5.1	.3	2.0
SEP											
20...	0	24	59	260	6.5	12	490	410	8.4	.4	1.4

06179000 EAST FORK POPLAR RIVER NEAR SCOBEY, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, KJEL-DAHL, TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P) (00671)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
OCT 24...	999	1.36	9.44	.02	.01	.99	1.0	.07	.00	1700	10
NOV 15...	1090	1.48	10.6	.00	.01	.66	.67	.05	.01	1900	10
DEC 15...	1740	2.37	21.6	.15	.22	.50	.72	.05	.00	2000	50
MAR 16...	954	1.30	38.6	.32	.64	.56	1.2	.09	.05	1500	80
29...	670	.91	326	.51	.17	1.1	1.3	.19	.12	990	100
APR 23...	475	.65	437	.30	.09	1.1	1.2	.12	.06	740	50
MAY 09...	668	.91	132	.01	.01	1.1	1.1	.07	.00	740	10
JUN 19...	644	.88	38.3	.01	.02	.75	.77	.05	.01	1100	30
JUL 20...	655	.89	7.78	.00	.05	1.2	1.2	.06	.01	1200	50
AUG 15...	900	1.22	4.62	.00	.04	1.3	1.3	.06	.00	1600	<10
SEP 20...	1070	1.46	9.82	.06	.15	.95	1.1	.05	.01	2000	30

DATE	TIME	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)
OCT 24...	1830	10	2	0	0	0	2
DEC 15...	0930	0	5	0	1	0	1
MAR 29...	1345	40	5	0	0	0	0
APR 23...	1630	0	4	<1	5	0	1
JUN 19...	1930	0	4	0	0	0	0
SEP 20...	1930	0	5	<1	<1	10	1

DATE	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	VANA-DIUM, DIS-SOLVED (UG/L AS V) (01085)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
OCT 24...	0	10	.0	5	0	.0	0
DEC 15...	1	80	.0	3	0	.0	20
MAR 29...	0	20	.0	0	0	.5	10
APR 23...	0	20	.1	0	0	.6	<3
JUN 19...	3	0	--	6	0	.0	10
SEP 20...	0	5	--	3	0	1.0	<3

06179000 EAST FORK POPLAR RIVER NEAR SCOBEY, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	ALUMINUM, TOTAL RECOVERABLE (UG/L AS AL) (01105)	ARSENIC TOTAL (UG/L AS AS) (01002)	BERYLLIUM, TOTAL RECOVERABLE (UG/L AS BE) (01012)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD) (01027)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)
OCT 24...	1830	700	4	0	1	0	4
APR 23...	1630	200	4	0	0	10	5
SEP 20...	1930	200	7	0	0	20	1

DATE	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)	LEAD, TOTAL RECOVERABLE (UG/L AS PB) (01051)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)	MERCURY TOTAL RECOVERABLE (UG/L AS HG) (71900)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI) (01067)	SELENIUM, TOTAL (UG/L AS SE) (01147)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)
OCT 24...	1300	6	80	.0	4	0	10
APR 23...	570	16	50	.2	4	1	10
SEP 20...	570	2	20	.3	4	0	0

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	13.5	12.0	13.0	4.5	2.0	3.5	.0	.0	.0	.0	.0	.0
2	12.0	9.5	10.5	5.5	2.5	4.0	.0	.0	.0	.0	.0	.0
3	10.5	8.5	9.5	5.5	4.0	5.0	.0	.0	.0	.0	.0	.0
4	10.0	7.5	8.5	5.5	3.5	4.5	.0	.0	.0	.0	.0	.0
5	9.5	6.5	8.0	3.5	1.5	2.0	.0	.0	.0	.0	.0	.0
6	9.5	6.0	7.5	2.0	.5	1.5	.0	.0	.0	.0	.0	.0
7	10.0	6.0	8.0	4.0	2.0	2.5	.0	.0	.0	.0	.0	.0
8	10.5	7.5	9.0	5.0	4.0	4.5	.0	.0	.0	.0	.0	.0
9	11.0	8.0	9.5	4.5	.5	2.5	.0	.0	.0	.0	.0	.0
10	11.0	8.5	10.0	.5	.0	.5	.0	.0	.0	.0	.0	.0
11	10.5	8.5	9.5	.5	.0	.5	.0	.0	.0	.0	.0	.0
12	9.0	7.0	8.0	.5	.0	.5	.0	.0	.0	.0	.0	.0
13	7.5	5.5	6.5	.5	.0	.0	.0	.0	.0	.0	.0	.0
14	7.5	4.5	6.0	.5	.0	.5	.0	.0	.0	.0	.0	.0
15	8.0	5.5	7.0	.5	.0	.5	.0	.0	.0	.0	.0	.0
16	7.5	5.0	6.5	.5	.0	.5	.0	.0	.0	.0	.0	.0
17	7.0	5.5	6.0	.5	.0	.0	.0	.0	.0	.0	.0	.0
18	7.0	4.0	5.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
19	9.0	5.5	7.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
20	9.5	6.5	8.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
21	8.5	6.5	7.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
22	6.5	4.5	5.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
23	6.5	4.0	5.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
24 *	7.0	6.0	6.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
25	6.0	5.0	5.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
26	5.5	3.5	4.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
27	5.0	3.0	4.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
28	6.0	4.0	5.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
29	5.0	4.0	4.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
30	5.0	3.5	4.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
31	4.0	2.5	3.5	---	---	---	.0	.0	.0	.0	.0	.0
MONTH	13.5	2.5	7.0	5.5	.0	1.0	.0	.0	.0	.0	.0	.0

06179000 EAST FORK POPLAR RIVER NEAR SCOBEY, MT--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	.0	.0	.0	.0	.0	.0				---	---	---
2	.0	.0	.0	.0	.0	.0				---	---	---
3	.0	.0	.0	.0	.0	.0				---	---	---
4	.0	.0	.0	.0	.0	.0				---	---	---
5	.0	.0	.0	.0	.0	.0				---	---	---
6	.0	.0	.0	---	---	---				---	---	---
7	.0	.0	.0	---	---	---				---	---	---
8	.0	.0	.0	---	---	---				---	---	---
9	.0	.0	.0	---	---	---				---	---	---
10	.0	.0	.0	---	---	---				10.0	6.0	8.0
11	.0	.0	.0	---	---	---				12.0	7.0	9.5
12	.0	.0	.0	---	---	---				12.5	8.5	10.5
13	.0	.0	.0	---	---	---				12.5	10.0	11.5
14	.0	.0	.0	---	---	---				15.0	10.5	12.5
15	.0	.0	.0	---	---	---				16.0	11.5	14.0
16	.0	.0	.0	---	---	---				18.0	14.0	16.0
17	.0	.0	.0	---	---	---				15.5	11.5	12.5
18	.0	.0	.0	---	---	---				14.5	10.5	12.5
19	.0	.0	.0	---	---	---				12.5	10.5	11.5
20	.0	.0	.0	---	---	---				15.0	10.0	12.5
21	.0	.0	.0	---	---	---				15.0	10.5	13.0
22	.0	.0	.0	---	---	---				14.0	11.5	13.0
23	.0	.0	.0	---	---	---				17.0	12.0	14.5
24	.0	.0	.0	---	---	---				18.5	13.5	16.0
25	.0	.0	.0	---	---	---				20.5	17.0	19.0
26	.0	.0	.0	---	---	---				21.5	17.5	19.5
27	.0	.0	.0	---	---	---				20.5	17.0	19.0
28	.0	.0	.0	---	---	---				20.0	17.0	18.0
29	---	---	---	---	---	---				16.5	15.0	16.0
30	---	---	---	---	---	---				17.5	13.5	15.5
31	---	---	---	---	---	---				16.0	13.5	15.0
MONTH	.0	.0	.0	.0	.0	.0				21.5	6.0	14.0

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	17.0	13.0	15.0	25.0	21.0	22.5	24.5	21.0	23.0	22.0	18.0	20.0
2	17.5	14.5	16.0	25.5	22.0	23.5	24.5	21.5	23.0	---	18.0	19.5
3	19.5	15.5	17.5	26.0	23.0	24.5	23.0	20.5	22.0	---	---	---
4	19.5	16.0	18.0	24.5	23.0	24.0	23.5	19.5	21.5	---	---	---
5	20.0	17.0	18.5	25.5	21.5	23.5	21.0	19.0	20.0	---	---	---
6	19.0	16.5	18.0	26.0	22.5	24.5	24.5	19.5	21.5	---	---	---
7	16.5	14.0	14.5	26.0	22.5	24.0	24.0	20.0	22.0	---	---	---
8	17.0	12.0	14.5	25.0	23.0	24.0	23.0	19.0	21.0	---	---	---
9	17.5	14.0	15.5	25.5	22.5	23.5	22.0	19.5	20.5	---	---	---
10	20.0	15.5	17.5	26.0	22.0	24.0	23.5	18.5	20.5	---	---	---
11	22.0	14.0	20.0	25.5	22.5	24.0	22.5	19.5	21.0	---	---	---
12	23.5	19.0	21.0	24.0	22.0	22.5	21.5	19.5	20.5	---	---	---
13	23.5	21.0	22.5	23.0	20.0	21.5	20.0	17.5	19.0	---	---	---
14	22.0	18.0	19.5	21.5	19.0	20.5	18.5	15.5	17.0	---	---	---
15	20.0	16.5	18.5	22.0	18.5	20.0	21.0	15.5	21.0	---	---	---
16	21.0	17.5	19.0	24.0	18.0	20.5	23.0	19.0	21.0	---	---	---
17	20.0	17.0	18.5	26.0	19.5	22.5	24.0	20.0	22.0	---	---	---
18	19.0	16.5	17.5	26.5	21.0	24.0	25.0	20.5	22.5	---	---	---
19	22.0	17.5	22.0	27.5	22.5	25.0	24.0	21.0	23.0	---	---	---
20	21.5	19.0	20.5	27.0	22.5	25.5	23.5	20.5	22.0	---	---	---
21	23.0	19.5	21.0	25.0	22.5	24.0	24.5	20.5	22.5	---	---	---
22	22.5	20.5	21.5	24.0	21.0	23.0	23.0	20.5	22.0	---	---	---
23	23.5	19.0	21.5	26.0	21.5	23.5	23.5	19.0	21.0	---	---	---
24	23.5	20.0	22.0	24.0	20.5	22.0	21.5	18.5	20.0	---	---	---
25	23.0	20.5	22.0	22.5	19.5	21.0	21.5	17.0	19.5	---	---	---
26	24.0	20.5	22.0	24.0	19.0	21.5	21.5	18.0	20.0	---	---	---
27	23.0	20.5	22.0	25.0	20.0	22.5	21.0	18.0	19.5	---	---	---
28	24.0	20.5	22.0	25.5	21.0	23.0	21.5	19.0	20.0	---	---	---
29	25.5	21.5	23.5	24.0	21.0	22.5	22.0	18.0	20.0	---	---	---
30	24.0	21.5	22.5	23.0	19.0	20.5	21.5	17.5	19.5	---	---	---
31	---	---	---	24.5	19.0	21.5	20.5	19.0	20.0	---	---	---
MONTH	25.5	12.0	19.5	27.5	18.0	23.0	25.0	15.5	21.0	22.0	18.0	20.0
YEAR	27.5	.0	9.5									

06179000 EAST FORK POPLAR RIVER NEAR SCOBEY, MT--Continued

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPER-ATURE (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)
OCT					
24...	1830	7.5	3.5	71	.67
NOV					
15...	1600	.5	3.6	46	.45
DEC					
15...	0930	.5	4.6	131	1.6
MAR					
16...	1100	1.0	15	48	1.9
29...	1345	.5	180	24	12
APR					
23...	1630	5.0	341	40	37
MAY					
09...	1815	8.5	73	24	4.7
JUN					
19...	1930	22.5	22	32	1.9
JUL					
20...	1030	23.5	4.4	26	.33
AUG					
15...	1500	16.0	1.9	43	.22
SEP					
20...	1930	16.0	3.4	36	.33

06179200 POPLAR RIVER ABOVE WEST FORK, NEAR BREDETTE, MT

LOCATION.--Lat 48°33'05", long 105°21'55", in NW¼SW¼SW¼ sec.4, T.32 N., R.49 E., Roosevelt County, Hydrologic Unit 10060004, on county road bridge, 3.8 mi (6.1 km) upstream from mouth, and 4.4 mi (7.1 km) northwest of Bredette.

DRAINAGE AREA.--1,745 mi² (4,520 km²).

PERIOD OF RECORD.--Water years 1976 to current year.

REMARKS.--Scheduled samplings were not possible during periods of no flow.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	HARD-NESS (MG/L AS CACO3) (00900)
OCT											
23...	1330	28	2	1370	8.6	14.0	6.5	5.0	10.5	93	280
NOV											
14...	1245	33	0	1570	8.6	3.5	.5	1.4	8.9	67	340
DEC											
12...	1230	12	2	1910	7.9	-4.0	.5	.50	7.8	58	450
MAR											
28...	1500	400	2	537	8.1	-4.0	.5	16	10.5	80	150
APR											
11...	1900	E1000	77	288	8.1	1.0	.5	95	10.6	81	90
MAY											
10...	1130	E500	2	1090	8.6	6.0	7.5	14	11.0	99	300
JUN											
19...	1200	34	0	1310	8.5	24.5	21.0	19	8.2	100	300
JUL											
18...	1300	9.5	0	1370	8.6	25.5	26.5	22	7.3	97	230
AUG											
16...	1030	7.2	0	1510	8.8	30.0	19.0	18	8.0	91	250
SEP											
18...	1430	7.8	0	1610	8.7	21.5	16.5	8.7	8.1	88	260

DATE	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)
OCT											
23...	0	42	42	240	6.3	9.2	490	300	14	.4	7.1
NOV											
14...	0	47	55	260	6.1	8.6	580	300	10	.4	8.3
DEC											
12...	0	61	73	310	6.3	11	710	400	18	.5	11
MAR											
28...	0	29	19	64	2.3	14	190	95	4.4	.1	10
APR											
11...	0	18	11	25	1.1	8.4	120	25	2.2	.1	12
MAY											
10...	0	50	43	150	3.8	8.5	390	220	6.6	.3	9.1
JUN											
19...	0	41	48	220	5.5	11	470	270	11	.4	5.5
JUL											
18...	0	25	41	230	6.6	10	460	280	11	.4	6.9
AUG											
16...	0	24	47	280	7.7	9.9	520	370	8.3	.5	3.8
SEP											
18...	0	25	47	290	7.9	10	540	360	14	.5	4.0

06179200 POPLAR RIVER ABOVE WEST FORK, NEAR BREDETTE, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, KJEL-DAHL, TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P) (00671)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
OCT 23...	951	1.29	71.9	.01	.01	1.1	1.1	.02	.00	1300	20
NOV 14...	1040	1.41	92.7	.01	.04	.59	.63	.02	.00	1500	30
DEC 12...	1310	1.78	42.4	.13	.03	.61	.64	.03	.01	1700	40
MAR 28...	351	.48	379	.70	.09	1.1	1.2	.21	.19	430	220
APR 11...	175	.24	473	.29	.05	1.1	1.1	.25	.02	220	290
MAY 10...	723	.98	976	.01	.01	.84	.85	.05	.01	680	80
JUN 19...	891	1.21	81.8	.00	.05	.77	.82	.04	.01	1400	10
JUL 18...	882	1.20	22.6	.01	.01	.74	.75	.06	.01	1400	10
AUG 16...	1060	1.44	20.6	.00	.01	.56	.57	.04	.00	1700	20
SEP 18...	1080	1.47	22.7	.05	.01	.69	.70	.02	.00	1700	20

DATE	TIME	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)
OCT 23...	1330	0	2	0	0	0	6
DEC 12...	1230	0	1	0	0	0	1
MAR 28...	1500	70	3	0	0	0	0
APR 11...	1900	300	5	<1	6	10	4
JUN 19...	1200	100	3	0	0	0	1
SEP 18...	1430	50	4	<1	<1	10	1

DATE	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	VANA-DIUM, DIS-SOLVED (UG/L AS V) (01085)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
OCT 23...	0	10	.0	2	0	.0	0
DEC 12...	1	40	.1	3	1	.0	10
MAR 28...	0	20	.0	0	0	2.0	10
APR 11...	0	40	.1	2	0	1.4	30
JUN 19...	3	10	--	6	0	.0	20
SEP 18...	0	5	.3	2	0	<1.0	80

06179200 POPLAR RIVER ABOVE WEST FORK, NEAR BREDETTE, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	ALUMINUM, TOTAL RECOVERABLE (UG/L AS AL) (01105)	ARSENIC TOTAL (UG/L AS AS) (01002)	BERYLLIUM, TOTAL RECOVERABLE (UG/L AS BE) (01012)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD) (01027)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)
OCT							
23...	1330	200	5	0	1	0	5
APR							
11...	1900	4400	3	0	1	10	6
SEP							
18...	1430	220	4	0	0	10	0

DATE	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)	LEAD, TOTAL RECOVERABLE (UG/L AS PB) (01051)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)	MERCURY TOTAL RECOVERABLE (UG/L AS HG) (71900)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI) (01067)	SELENIUM, TOTAL (UG/L AS SE) (01147)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)
OCT							
23...	420	2	60	.0	7	0	30
APR							
11...	4600	10	160	.2	8	0	30
SEP							
18...	370	0	40	.5	3	0	90

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPERATURE (DEG C) (00010)	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)
OCT					
23...	1330	6.5	28	58	4.4
NOV					
14...	1245	.5	33	39	3.5
DEC					
12...	1230	.5	12	35	1.1
APR					
11...	1900	.5	E1000	297	802
JUN					
19...	1200	21.0	34	54	5.0
JUL					
18...	1300	26.5	9.5	42	1.1
AUG					
16...	1030	19.0	7.2	52	1.0
SEP					
18...	1430	16.5	7.8	49	1.0

06179500 WEST FORK POPLAR RIVER AT INTERNATIONAL BOUNDARY

LOCATION.--Lat 49°00'00", long 106°22'00", in SE¼ sec.5, T.1 N., R.3 W., third meridian, Hydrologic Unit 10060004, at West Poplar River Canadian Customs Post, 100 ft (30.5 m) north of international boundary, 8.0 mi (12.9 km) upstream from Roanwood Coulee, and 10 mi (16 km) north of Opheim.

DRAINAGE AREA.--139 mi² (360 km²).

PERIOD OF RECORD.--Water years 1976 to September 1979 (discontinued).

REMARKS.--Scheduled samplings were not possible during periods of no flow.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE (DEG C) (00010)	TURBIDITY (NTU) (00076)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	HARDNESS (MG/L AS CACO3) (00900)
OCT											
16...	1245	.32	3	1330	8.5	15.0	9.0	10	--	--	200
NOV											
29...	1100	.54	70	1900	8.2	-10.0	1.0	1.8	11.6	91	300
DEC											
26...	1045	E.25	3	1750	7.7	-12.0	.5	7.2	12.0	92	310
MAR											
31...	1200	5.8	70	530	7.6	-4.0	.0	25	10.4	76	81
APR											
10...	1000	250	66	140	6.5	2.0	.5	--	9.8	76	49
27...	1300	31	1	420	7.9	10.0	7.0	18	11.4	104	85
MAY											
21...	1600	4.3	1	1360	8.6	18.0	14.0	8.4	8.4	91	270
JUN											
04...	1330	1.5	1	1560	8.5	23.0	18.0	7.4	7.8	92	300
JUL											
19...	1130	1.3	0	630	8.3	26.5	25.5	20	7.1	95	140
AUG											
27...	1215	.03	1	1000	9.0	21.5	22.0	12	11.5	145	130
SEP											
18...	1530	.20	0	1080	9.0	22.5	16.5	6.8	10.1	112	130

DATE	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY (MG/L AS CACO3) (00410)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)
OCT											
16...	0	27	32	270	8.3	11	600	170	6.1	.5	2.5
NOV											
29...	0	44	46	380	9.6	14	840	280	14	.5	11
DEC											
26...	0	50	44	300	7.5	12	--	240	7.4	.4	22
MAR											
31...	0	16	9.9	73	3.5	11	180	70	6.0	.2	21
APR											
10...	1	11	5.2	9.7	.6	8.5	48	12	1.6	.1	3.7
27...	0	16	11	59	2.8	8.0	160	55	2.3	.1	9.6
MAY											
21...	0	41	41	230	6.1	11	490	240	4.2	.3	8.2
JUN											
04...	0	42	48	260	6.5	.6	620	260	4.4	.4	4.4
JUL											
19...	0	26	18	90	3.3	10	270	62	3.5	.2	9.6
AUG											
27...	0	15	23	180	6.8	11	400	150	4.9	.4	1.5
SEP											
18...	0	16	23	190	7.1	11	370	140	4.7	.5	2.1

06179500 WEST FORK POPLAR RIVER AT INTERNATIONAL BOUNDARY--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITROGEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITROGEN, KJELDAHL, TOTAL (MG/L AS N) (00625)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P) (00671)	BORON, DISSOLVED (UG/L AS B) (01020)	IRON, DISSOLVED (UG/L AS FE) (01046)
OCT 16...	681	1.20	.76	.05	.01	1.7	1.7	.07	.01	1100	30
NOV 29...	1300	1.77	1.90	.08	.21	1.7	1.9	.04	.00	1400	40
DEC 26...	924	1.26	.62	.05	.40	1.0	1.4	.04	.01	940	160
MAR 31...	317	.43	4.96	1.8	.06	1.6	1.9	.12	.07	300	750
APR 10...	81	.11	54.7	--	--	--	--	--	--	80	130
27...	258	.35	21.7	.02	.03	1.3	1.3	.07	.06	220	580
MAY 21...	871	1.18	10.1	.00	.06	1.5	1.6	.05	.00	790	100
JUN 04...	994	1.35	4.03	.17	.07	1.7	1.8	.02	.01	940	20
JUL 19...	382	.52	1.35	.00	.04	1.6	1.6	.08	.03	470	180
AUG 27...	627	.85	.06	.01	.04	.84	.88	.04	.00	680	50
SEP 18...	611	.83	.33	.09	.02	1.3	1.3	.04	.04	730	70

DATE	TIME	ALUMINUM, DISSOLVED (UG/L AS AL) (01106)	ARSENIC DISSOLVED (UG/L AS AS) (01000)	BERYLLIUM, DISSOLVED (UG/L AS BE) (01010)	CADMIUM DISSOLVED (UG/L AS CD) (01025)	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COPPER, DISSOLVED (UG/L AS CU) (01040)
OCT 16...	1245	0	3	0	1	0	3
DEC 26...	1045	--	3	<1	<1	0	2
MAR 31...	1200	800	2	<1	1	10	7
APR 10...	1000	--	1	0	--	0	3
JUN 04...	1330	0	2	0	1	0	1
SEP 18...	1530	20	3	<1	<1	10	2

DATE	LEAD, DISSOLVED (UG/L AS PB) (01049)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MERCURY DISSOLVED (UG/L AS HG) (71890)	NICKEL, DISSOLVED (UG/L AS NI) (01065)	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	VANADIUM, DISSOLVED (UG/L AS V) (01085)	ZINC, DISSOLVED (UG/L AS ZN) (01090)
OCT 16...	21	20	.0	3	0	.0	10
DEC 26...	1	190	.0	1	0	.0	5
MAR 31...	0	50	--	5	1	5.3	10
APR 10...	0	20	.0	0	0	3.1	10
JUN 04...	0	10	.1	3	0	.3	10
SEP 18...	0	7	.0	3	0	1.0	<3

06179500 WEST FORK POPLAR RIVER AT INTERNATIONAL BOUNDARY--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	ALUMINUM, TOTAL RECOVERABLE (UG/L AS AL) (01105)	ARSENIC TOTAL (UG/L AS AS) (01002)	BERYLLIUM, TOTAL RECOVERABLE (UG/L AS BE) (01012)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD) (01027)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)
OCT							
16...	1245	100	4	0	1	0	3
APR							
10...	1000	3000	1	0	3	0	6
SEP							
18...	1530	200	4	0	0	20	1

DATE	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)	LEAD, TOTAL RECOVERABLE (UG/L AS PB) (01051)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)	MERCURY TOTAL RECOVERABLE (UG/L AS HG) (71900)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI) (01067)	SELENIUM, TOTAL (UG/L AS SE) (01147)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)
OCT							
16...	440	23	40	.0	2	0	20
APR							
10...	2000	25	40	.2	4	0	10
SEP							
18...	280	2	30	.2	3	0	20

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPERATURE (DEG C) (00010)	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT						
16...	1245	9.0	.32	76	.07	--
NOV						
29...	1100	1.0	.54	56	.08	--
DEC						
26...	1045	.5	E.25	129	.09	--
MAR						
31...	1200	.0	5.8	14	.22	--
APR						
11...	1000	.5	200	74	40	96
26...	1700	3.0	30	45	3.6	--
MAY						
21...	1600	14.0	4.3	37	.43	--
JUN						
04...	1330	18.0	1.5	52	.21	--
JUL						
19...	1130	25.5	1.3	17	.06	--
AUG						
27...	1215	22.0	.03	19	.00	--
SEP						
18...	1530	16.5	.20	16	.01	--

06180400 WEST FORK POPLAR RIVER NEAR BREDETTE, MT

LOCATION.--Lat 48°33'01", long 105°25'42", in SW¼SW¼ sec.1, T.32 N., R.48 E., Roosevelt County, Hydrologic Unit 10060004, at bridge on State Highway 13, 5.9 mi (9.5 km) upstream from mouth, and 6.6 mi (10.6 km) northwest of Bredette.

DRAINAGE AREA.--1,010 mi² (2,616 km²).

PERIOD OF RECORD.--Water years 1976 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	HARD-NESS (MG/L AS CACO3) (00900)
OCT											
23...	1530	16	2	1080	8.7	18.5	8.5	4.3	11.2	104	130
NOV											
14...	1430	17	0	1170	8.6	-.5	.5	1.4	12.2	91	150
DEC											
12...	1530	6.4	2	1360	8.0	-3.0	.5	1.0	9.5	71	160
JAN											
16...	1150	E.50	0	1200	7.8	-20.0	.0	46	2.2	16	140
MAR											
28...	1550	E300	2	409	8.1	-4.0	.5	44	10.0	76	85
APR											
11...	1600	3160	57	188	8.0	2.0	.5	120	10.9	83	57
MAY											
17...	1230	82	3	968	8.4	9.5	11.0	5.5	9.5	94	160
JUN											
19...	1500	12	2	1150	8.6	26.5	22.0	5.0	8.5	106	130
JUL											
18...	1400	17	0	915	8.5	31.5	25.5	11	7.4	97	120
AUG											
16...	1300	4.6	0	1150	8.9	31.0	22.0	14	9.1	109	99
SEP											
18...	1700	2.5	0	1310	8.8	26.0	20.0	14	9.9	116	93

DATE	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)
OCT											
23...	0	24	17	230	6.8	4.7	470	150	6.9	.4	7.5
NOV											
14...	0	27	19	240	6.7	4.1	430	150	6.7	.4	9.6
DEC											
12...	0	30	20	280	9.7	5.4	600	180	8.4	.4	9.9
JAN											
16...	0	23	20	260	9.6	4.9	520	150	20	.3	11
MAR											
28...	0	19	9.1	58	2.7	10	150	56	4.0	.2	11
APR											
11...	0	13	5.9	18	1.0	5.9	80	13	1.8	.1	9.2
MAY											
17...	0	33	24	170	5.5	1.7	400	120	5.4	.4	8.8
JUN											
19...	0	19	19	240	9.3	5.2	470	150	6.4	.5	5.8
JUL											
18...	0	21	16	170	6.8	5.9	390	110	5.0	.4	9.5
AUG											
16...	0	15	15	260	11	5.1	490	150	4.6	.5	4.7
SEP											
18...	0	14	14	290	13	4.9	530	200	7.4	.5	7.2

06180400 WEST FORK POPLAR RIVER NEAR BREDETTE, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITROGEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITROGEN, KJELDAHL, TOTAL (MG/L AS N) (00625)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P) (00671)	BORON, DISSOLVED (UG/L AS B) (01020)	IRON, DISSOLVED (UG/L AS FE) (01046)
OCT 23...	724	.98	31.3	.02	.02	.41	.43	.01	.00	550	20
NOV 14...	716	.97	32.9	.01	.01	.36	.37	.01	.01	590	30
DEC 12...	896	1.22	15.5	.04	.01	.32	.33	.03	.00	600	30
JAN 16...	802	1.09	1.08	.05	.02	.62	.64	.08	.00	520	40
MAR 28...	259	.35	210	.99	.06	1.1	1.2	.22	.13	180	400
APR 11...	116	.16	990	.33	.07	1.4	1.5	.25	.01	110	280
MAY 17...	604	.82	134	.00	.01	.61	.62	.04	.03	400	60
JUN 19...	729	.99	23.6	.01	.04	.51	.55	.02	.01	620	20
JUL 18...	573	.78	26.5	.03	.03	.40	.43	.04	.01	540	40
AUG 16...	750	1.02	9.31	.02	.01	.41	.42	.03	.00	680	10
SEP 18...	857	1.17	5.78	.05	.01	.50	.51	.02	.01	710	30

DATE	TIME	ALUMINUM, DISSOLVED (UG/L AS AL) (01106)	ARSENIC DISSOLVED (UG/L AS AS) (01000)	BERYLLIUM, DISSOLVED (UG/L AS BE) (01010)	CADMIUM DISSOLVED (UG/L AS CD) (01025)	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COPPER, DISSOLVED (UG/L AS CU) (01040)
OCT 23...	1530	0	2	0	1	0	6
DEC 12...	1530	0	1	0	0	0	1
MAR 28...	1550	100	3	0	0	0	0
APR 11...	1800	300	8	<1	4	0	4
JUN 19...	1500	0	2	0	0	0	3
SEP 18...	1700	30	4	<1	<1	10	1

DATE	LEAD, DISSOLVED (UG/L AS PB) (01049)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MERCURY DISSOLVED (UG/L AS HG) (71890)	NICKEL, DISSOLVED (UG/L AS NI) (01065)	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	VANADIUM, DISSOLVED (UG/L AS V) (01085)	ZINC, DISSOLVED (UG/L AS ZN) (01090)
OCT 23...	0	20	.0	2	0	.0	20
DEC 12...	1	20	.0	3	0	.0	10
MAR 28...	0	40	.0	0	1	3.0	30
APR 11...	2	30	.0	4	0	1.3	40
JUN 19...	3	10	--	6	0	.0	10
SEP 18...	0	10	.4	3	0	<1.0	4

06180400 WEST FORK POPLAR RIVER NEAR BREDETTE, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	ALUMINUM, TOTAL RECOVERABLE (UG/L AS AL) (01105)	ARSENIC TOTAL (UG/L AS AS) (01002)	BERYLLIUM, TOTAL RECOVERABLE (UG/L AS BE) (01012)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD) (01027)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)
OCT 23...	1530	200	2	0	1	0	4
APR 11...	1800	5000	2	0	1	10	7
SEP 18...	1700	260	4	0	0	10	1

DATE	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)	LEAD, TOTAL RECOVERABLE (UG/L AS PB) (01051)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)	MERCURY TOTAL RECOVERABLE (UG/L AS HG) (71900)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI) (01067)	SELENIUM, TOTAL (UG/L AS SE) (01147)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)
OCT 23...	380	0	40	.0	6	0	90
APR 11...	5200	18	140	.1	11	0	30
SEP 18...	410	3	40	.5	3	0	0

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPERATURE (DEG C) (00010)	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)
OCT 23...	1530	8.5	16	34	1.5
NOV 14...	1430	.5	17	44	2.0
DEC 12...	1530	.5	6.4	17	.29
APR 11...	1800	.5	3160	99	845
MAY 17...	1230	11.0	82	34	7.5
JUN 19...	1500	22.0	12	24	.78
JUL 18...	1400	25.5	17	38	1.7
AUG 16...	1300	22.0	4.6	31	.39
SEP 18...	1700	20.0	2.5	26	.18

06181000 POPLAR RIVER NEAR POPLAR, MT

LOCATION.--Lat 48°10'15", long 105°10'42", in NE¼NE¼ sec.19, T.28 N., R.51 E., Roosevelt County, Hydrologic Unit 10060003, on right bank 4 mi (6 km) north of Poplar and 11 mi (18 km) upstream from mouth.

DRAINAGE AREA.--3,174 mi² (8,221 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1908 to October 1924, August 1947 to September 1969, June 1975 to September 1979 (discontinued). Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WSP 1176. 1948. WSP 1389: 1911. WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 1,970 ft (600 m), from topographic map. Prior to May 1, 1911, nonrecording gage at site 4.2 mi (6.8 km) upstream at different datum. May 1, 1911, to Oct. 4, 1913, nonrecording gage at site 14 mi (23 km) upstream at different datum. Oct. 5, 1913, to Oct. 31, 1924, nonrecording gage at site 2.2 mi (3.5 km) upstream at different datum. Aug. 10, 1947, to Sept. 30, 1969, water-stage recorder at present site and datum.

REMARKS.--Water-discharge records good except those for winter period, which are poor. Diversions for irrigation of about 5,500 acres (22.3 km²) above station. Flow partially regulated by Coronach Dam, on the East Fork Poplar River, 2 mi (3 km) north of international boundary.

AVERAGE DISCHARGE.- 42 years (1908-24, 1947-69, 1975-79), 138 ft³/s (3.908 m³/s), 99,980 acre-ft/yr (123 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 37,400 ft³/s (1,060 m³/s) Apr. 6, 1954, gage height, 17.86 ft (5.444 m), from floodmark, no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of July 10, 1946, reached a stage of 18.1 ft (5.52 m), from floodmark, discharge, 40,000 ft³/s (1,130 m³/s), from slope-area measurement of peak flow made at site 20 mi (32 km) upstream.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 500 ft³/s (14.2 m³/s) and maximums (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 28	0400	1,500	42.5	a 9.75	2.972	Apr. 19	0600	*6,000	170	*14.52	4.426
Apr. 11	unknown	5,800	164	a14.35	4.374	May 8	1400	722	20.4	5.15	1.570

a--Ice jam.

Minimum daily discharge, 2.2 ft³/s (0.062 m³/s) Feb. 16.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	70	42	17	5.4	3.0	2.5	800	625	164	58	52	15
2	65	42	16	5.4	3.0	2.4	700	550	161	62	54	18
3	62	42	18	5.6	2.8	2.3	650	499	157	55	41	15
4	60	42	19	5.8	2.7	2.3	600	464	152	54	35	15
5	57	46	18	5.4	2.9	2.4	550	434	149	51	32	15
6	54	42	17	5.0	2.7	2.5	600	420	142	49	30	15
7	52	42	15	4.8	2.5	2.6	800	484	137	46	28	14
8	51	42	14	4.5	2.4	2.6	1500	668	135	161	26	14
9	49	44	15	4.4	2.4	2.5	2500	674	130	130	27	14
10	49	37	16	4.7	2.4	2.4	3500	654	126	90	26	14
11	48	37	17	4.6	2.4	2.5	5000	651	125	80	25	14
12	48	36	16	4.3	2.5	2.6	4500	577	116	70	24	13
13	48	35	15	4.2	2.5	2.7	3000	490	109	65	23	13
14	46	39	15	4.1	2.4	2.7	2120	422	97	60	22	13
15	46	36	14	4.2	2.3	2.7	1540	364	91	55	20	13
16	45	36	14	4.3	2.2	2.8	1300	330	90	53	20	13
17	45	35	14	4.4	2.3	2.8	2190	299	85	52	20	13
18	45	30	13	4.3	2.4	2.9	3500	276	76	48	20	12
19	45	25	12	4.3	2.5	3.0	5500	270	76	44	19	12
20	45	22	11	4.5	2.6	3.1	4500	267	79	40	18	12
21	44	21	12	4.2	2.7	20	3300	262	72	36	18	12
22	44	21	11	3.9	2.8	100	2150	258	73	39	17	12
23	42	22	10	3.6	2.7	200	1460	254	76	37	16	12
24	41	23	11	3.7	2.6	400	1220	236	70	34	16	12
25	42	22	10	3.6	2.6	600	1130	226	68	37	16	12
26	41	21	9.0	3.4	2.4	800	1030	208	67	36	16	12
27	40	20	8.0	3.3	2.4	1100	960	192	67	36	16	13
28	40	21	7.0	3.2	2.6	1400	918	190	67	33	16	14
29	41	20	6.0	3.2	---	1200	810	183	65	31	15	14
30	42	18	5.0	3.4	---	1000	694	173	62	33	15	14
31	42	---	5.2	3.2	---	900	---	166	---	36	13	---
TOTAL	1489	961	400.2	132.9	71.7	7772.3	59022	11767	3082	1711	736	404
MEAN	48.0	32.0	12.9	4.29	2.56	251	1967	380	103	55.2	23.7	13.5
MAX	70	46	19	5.8	3.0	1400	5500	674	164	161	54	18
MIN	40	18	5.0	3.2	2.2	2.3	550	166	62	31	13	12
AC-FT	2950	1910	794	264	142	15420	117100	23340	6110	3390	1460	801

CAL YR 1978 TOTAL 73466.4 MEAN 201 MAX 4650 MIN 1.0 AC-FT 145700
WTR YR 1979 TOTAL 87569.1 MEAN 240 MAX 5500 MIN 2.2 AC-FT 173700

06181000 POPLAR RIVER NEAR POPLAR, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1975 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	HARD-NESS (MG/L AS CACO3) (00900)
OCT											
26...	1230	40	0	1410	8.7	9.0	6.0	30	10.9	95	200
NOV											
17...	1200	36	2	1610	8.6	-2.0	.5	3.5	12.5	93	270
DEC											
11...	1215	18	2	2060	8.1	3.5	.5	.90	9.3	70	390
JAN											
15...	1300	4.1	0	3400	7.7	-25.0	.0	2.7	6.9	50	580
FEB											
20...	1330	2.5	2	2530	7.8	-5.0	.0	1.2	8.7	64	500
MAR											
30...	1330	945	0	493	8.0	6.5	1.0	44	11.4	86	120
APR											
19...	1630	5500	2	310	8.0	9.0	4.0	260	10.5	86	88
MAY											
15...	1430	375	0	1180	8.5	25.5	15.0	14	9.1	97	250
JUN											
18...	1400	75	1	1420	8.7	20.5	19.0	11	8.7	100	270
JUL											
17...	1130	51	0	1280	8.4	31.0	21.0	29	7.5	89	190
AUG											
13...	1345	23	3	1660	8.4	20.0	20.5	14	8.2	96	250
SEP											
17...	1500	13	2	1870	8.6	22.5	18.5	12	8.3	94	260

DATE	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)
OCT											
26...	0	30	31	260	8.0	7.1	470	220	68	.4	6.8
NOV											
17...	0	38	42	300	8.0	7.1	550	270	60	.4	9.1
DEC											
11...	0	62	57	360	7.9	10	680	320	130	.5	11
JAN											
15...	70	100	79	550	10	11	530	280	540	.4	13
FEB											
20...	68	99	61	420	8.2	8.5	430	280	460	.3	12
MAR											
30...	0	25	15	61	2.4	12	170	93	4.9	.1	10
APR											
19...	0	17	11	33	1.5	7.4	110	40	2.7	.2	11
MAY											
15...	0	45	33	180	5.0	7.7	400	200	24	.3	8.6
JUN											
18...	0	38	42	240	6.4	8.6	430	220	82	.4	5.5
JUL											
17...	0	30	28	220	6.9	8.0	380	190	60	.4	11
AUG											
13...	0	31	38	300	8.5	8.2	430	240	160	.4	7.0
SEP											
17...	0	32	43	390	11	9.1	430	260	260	.4	7.0

POPLAR RIVER BASIN

06181000 POPLAR RIVER NEAR POPLAR, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P) (00671)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
OCT											
26...	907	1.23	98.0	.00	.01	.58	.59	.03	.02	940	10
NOV											
17...	1060	1.44	103	.01	.01	.51	.52	.02	.01	1100	0
DEC											
11...	1360	1.85	66.1	.02	.01	.74	.75	.03	.02	1200	30
JAN											
15...	1930	1.06	8.62	.07	.10	.56	.66	.02	.00	990	0
FEB											
20...	1600	2.18	10.8	.16	.13	.24	.37	.02	.04	720	50
MAR											
30...	324	.44	827	.77	.06	1.2	1.3	.21	.11	300	150
APR											
19...	189	.26	2810	.26	.07	1.7	1.8	.25	.01	200	50
MAY											
15...	740	1.01	749	.01	.01	.91	.92	.05	.00	630	50
JUN											
18...	896	1.22	181	.00	.03	.58	.61	.02	.01	1100	0
JUL											
17...	797	1.08	110	.01	.02	.85	.87	.01	.03	760	30
AUG											
13...	1060	1.44	65.8	.01	.01	.46	.47	.02	.00	660	10
SEP											
17...	1260	1.71	44.2	.19	.02	.54	.56	.02	.03	1000	0

DATE	TIME	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)
OCT							
26...	1230	20	2	0	0	0	4
DEC							
11...	1215	0	1	0	0	0	1
MAR							
30...	1330	90	2	0	0	0	0
APR							
19...	1630	200	6	<1	3	0	3
JUN							
18...	1400	0	3	0	1	0	1
SEP							
17...	1500	0	3	0	0	10	1

DATE	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	VANA-DIUM, DIS-SOLVED (UG/L AS V) (01085)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
OCT							
26...	0	10	.0	6	0	.0	0
DEC							
11...	2	70	.0	3	1	.0	10
MAR							
30...	0	10	.0	0	0	1.9	10
APR							
19...	13	20	.0	2	0	3.4	5
JUN							
18...	3	10	--	6	0	.0	10
SEP							
17...	0	20	--	3	0	2.0	20

06181000 POPLAR RIVER NEAR POPLAR, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	ALUMINUM, TOTAL RECOVERABLE (UG/L AS AL) (01105)	ARSENIC TOTAL (UG/L AS AS) (01002)	BERYLLIUM, TOTAL RECOVERABLE (UG/L AS BE) (01012)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD) (01027)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)
OCT							
26...	1230	700	2	0	1	0	4
APR							
19...	1630	8800	5	0	1	10	25
SEP							
17...	1500	200	2	0	0	10	2

DATE	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)	LEAD, TOTAL RECOVERABLE (UG/L AS PB) (01051)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)	MERCURY TOTAL RECOVERABLE (UG/L AS HG) (71900)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI) (01067)	SELENIUM, TOTAL (UG/L AS SE) (01147)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)
OCT							
26...	910	16	110	.0	5	0	10
APR							
19...	11000	44	200	.1	19	0	80
SEP							
17...	310	0	60	1.5	4	0	20

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPERATURE (DEG C) (00010)	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT						
26...	1230	6.0	40	61	6.7	--
NOV						
17...	1200	.5	36	58	5.6	--
DEC						
11...	1215	.5	18	34	1.7	--
FEB						
20...	1330	.0	2.5	58	.39	--
MAR						
30...	1330	1.0	945	58	148	--
APR						
19...	1630	4.0	5500	502	7460	99
MAY						
15...	1430	15.0	375	80	81	--
JUN						
18...	1400	19.0	75	45	9.1	--
JUL						
17...	1130	21.0	51	68	9.4	--
AUG						
13...	1345	20.5	23	64	4.0	--
SEP						
17...	1500	18.5	13	62	2.2	--

06181995 BEAVER CREEK AT INTERNATIONAL BOUNDARY

(International gaging station)

LOCATION.--Lat 49°00'03", long 105°02'09", in SE¼ sec.5, T.1, R.23 W., second meridian, Hydrologic Unit 10060006, on left bank 300 ft (91 m) north of international boundary, 6 mi (10 km) east of Canadian Big Beaver Port of Entry, 8 mi (13 km) upstream from mouth, and 9 mi (14 km) southeast of Big Beaver, Saskatchewan.

DRAINAGE AREA.--180 mi² (470 km²), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1977 to current year. April 1949 to October 1952, seasonal record collected 0.8 mi (1.3 km) downstream (06182000 Beaver Creek near international boundary). Records probably are equivalent.

GAGE.--Water-stage recorder. Altitude of gage is 2,250 ft (686 m), from topographic map. April 1949 to October 1952, nonrecording gage 0.8 mi (1.3 km) downstream at different datum.

REMARKS.--Water-discharge records fair except those for winter period, which are poor.

COOPERATION.--This is one of a number of stations which are maintained jointly by Canada and the United States.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,020 ft³/s (114 m³/s) Apr. 7, 1952, gage height 13.3 ft (4.05 m), from floodmark, from rating curve extended above 320 ft³/s (9.06 m³/s), on basis of slope-area measurements of peak flow; no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 904 ft³/s (25.6 m³/s) Apr. 18, gage height, 7.97 ft (2.429 m); maximum gage height, 8.75 ft (2.666 m) Mar. 25 (backwater from ice); minimum daily discharge, 0.42 ft³/s (0.012 m³/s) Aug. 25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.3	1.3	1.7	1.1	.99	1.8	3.6	18	4.8	1.4	1.7	1.4
2	1.5	1.4	1.6	1.1	1.0	1.9	3.4	17	4.5	1.4	1.7	1.3
3	1.5	1.3	1.6	1.1	1.1	1.9	5.2	14	4.4	1.5	1.6	1.2
4	1.7	1.3	1.5	1.1	1.1	1.9	7.7	12	4.7	1.6	1.6	1.2
5	1.8	1.1	1.4	1.1	1.1	2.3	13	12	4.7	1.5	1.6	1.1
6	2.0	1.2	1.4	1.1	1.1	2.6	5.3	15	4.2	1.4	1.6	1.1
7	2.3	1.2	1.3	1.1	1.1	2.9	12	36	3.9	1.4	1.5	.99
8	2.4	1.3	1.3	1.1	1.2	3.2	29	31	3.7	1.4	1.4	.99
9	2.6	1.2	1.3	1.0	1.2	2.8	271	20	3.4	1.4	1.6	.99
10	2.5	1.3	1.2	1.0	1.2	2.5	296	19	3.2	1.4	1.[illegible]	1.4
11	2.4	1.4	1.2	1.0	1.3	3.2	212	13	3.0	1.4	1.4	1.4
12	2.3	1.4	1.2	1.0	1.3	4.2	115	10	3.0	1.4	1.4	1.2
13	2.4	1.4	1.2	1.0	1.4	5.7	65	9.3	2.7	1.4	1.4	1.1
14	2.1	1.6	1.2	1.0	1.4	8.1	32	11	2.5	1.3	1.4	1.0
15	2.1	1.5	1.1	1.0	1.5	11	26	12	2.4	1.4	1.4	.99
16	2.1	1.6	1.1	1.0	1.6	12	95	11	2.3	1.4	1.7	.99
17	2.0	1.5	1.1	1.0	1.6	13	470	11	2.1	1.3	1.3	.99
18	1.9	1.7	1.1	1.1	1.6	10	629	12	2.0	1.3	1.1	.42
19	1.9	1.8	1.1	1.1	1.7	15	360	11	2.0	1.3	1.1	.92
20	1.8	1.9	1.1	1.1	1.7	5.9	237	11	1.9	1.3	1.2	.88
21	1.6	2.0	1.1	1.1	1.7	95	190	10	1.8	1.3	1.3	.95
22	1.6	2.2	1.1	1.1	1.7	106	144	8.0	1.9	1.3	1.5	1.2
23	1.5	2.3	1.1	1.0	1.7	105	96	7.1	2.2	1.6	1.6	1.2
24	1.3	2.1	1.1	.95	1.7	80	67	6.4	2.0	1.8	1.4	1.1
25	1.4	2.0	1.1	.92	1.8	60	50	6.2	1.7	1.8	1.3	1.1
26	1.4	1.9	1.1	.92	1.8	43	45	5.5	1.6	1.7	1.3	1.2
27	1.4	1.8	1.1	.92	1.8	46	46	5.1	1.5	1.6	1.4	1.3
28	1.4	1.8	1.1	.92	1.8	40	34	4.8	1.6	1.5	1.6	1.3
29	1.5	1.8	1.1	.95	---	22	27	4.7	1.5	1.6	1.6	1.2
30	1.4	1.7	1.1	.95	---	10	19	4.4	1.4	1.9	1.4	1.2
31	1.4	---	1.1	.99	---	1.9	---	4.6	---	2.0	1.2	---
TOTAL	56.3	48.0	37.8	31.82	40.19	720.8	3605.4	372.1	82.6	46.0	44.8	33.81
MEAN	1.82	1.60	1.22	1.03	1.44	23.3	120	12.0	2.75	1.48	1.45	1.13
MAX	2.6	2.3	1.7	1.1	1.8	106	629	36	4.8	2.0	1.7	1.4
MIN	1.3	1.1	1.1	.92	.99	1.8	3.4	4.4	1.4	1.3	1.1	.88
AC-FT	112	95	75	63	80	1430	7150	738	164	91	89	67

CAL YR 1978 TOTAL 4148.66 MEAN 11.4 MAX 400 MIN .18 AC-FT 8230
WTR YR 1979 TOTAL 5119.62 MEAN 14.0 MAX 629 MIN .88 AC-FT 10150

06181995 BEAVER CREEK AT INTERNATIONAL BOUNDARY--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1977 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPECIFIC CONDUCTANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE (DEG C) (00010)	TURBIDITY (NTU) (00076)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	HARDNESS (MG/L AS CACO3) (00900)
OCT											
25...	1100	1.3	2	1650	8.2	3.0	6.0	2.5	10.3	90	230
DEC											
13...	1200	1.2	0	1840	7.5	-1.0	.5	2.0	7.8	58	290
MAR											
27...	1300	37	70	334	7.8	-4.0	.0	21	10.9	81	98
JUN											
20...	1400	1.9	2	1650	8.3	24.5	22.0	3.3	9.1	113	270
SEP											
19...	1130	.92	0	1680	8.4	21.0	14.5	1.7	6.8	72	240

DATE	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY (MG/L AS CACO3) (00410)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)
OCT											
25...	0	43	29	330	9.5	7.6	550	370	6.4	.2	5.8
DEC											
13...	0	62	34	330	8.4	9.2	520	430	7.0	.2	16
MAR											
27...	0	21	11	32	1.4	14	110	63	2.7	.1	11
JUN											
20...	0	51	35	300	7.9	7.6	510	380	5.5	.2	4.8
SEP											
19...	0	44	32	310	8.7	7.9	460	400	5.6	.2	9.5

DATE	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITROGEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P) (00671)	BORON, DISSOLVED (UG/L AS B) (01020)	IRON, DISSOLVED (UG/L AS FE) (01046)
OCT											
25...	1120	1.52	3.93	.00	.00	.26	.26	.01	.00	1500	30
DEC											
13...	1200	1.63	3.89	.08	.49	.40	.89	.03	.00	1600	50
MAR											
27...	222	.30	22.2	.72	.06	1.2	1.3	.30	.18	200	270
JUN											
20...	1090	1.48	5.59	.04	.04	.34	.38	.02	.00	1800	10
SEP											
19...	1080	1.47	2.62	.14	.01	.51	.52	.01	.00	1600	40

06181995 BEAVER CREEK AT INTERNATIONAL BOUNDARY--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	ALUMINUM, DIS-SOLVED (UG/L AS AL) (01106)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BERYLLIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHROMIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)
OCT							
25...	1100	0	1	0	--	0	2
DEC							
13...	1200	0	1	0	0	10	0
MAR							
27...	1300	0	2	0	0	0	0
JUN							
20...	1400	0	2	0	0	0	0
SEP							
19...	1130	0	5	0	0	10	1

DATE	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGANESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELENIUM, DIS-SOLVED (UG/L AS SE) (01145)	VANADIUM, DIS-SOLVED (UG/L AS V) (01085)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
OCT							
25...	0	20	.0	1	0	.0	0
DEC							
13...	1	110	.0	2	0	.0	10
MAR							
27...	0	40	.0	0	0	2.8	10
JUN							
20...	1	20	.6	4	0	.0	20
SEP							
19...	0	20	.3	2	0	--	20

DATE	TIME	ALUMINUM, TOTAL RECOVERABLE (UG/L AS AL) (01105)	ARSENIC TOTAL (UG/L AS AS) (01002)	BERYLLIUM, TOTAL RECOVERABLE (UG/L AS BE) (01012)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD) (01027)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)
OCT							
25...	1100	0	1	0	4	0	2
MAR							
27...	1300	700	2	0	0	10	5
SEP							
19...	1130	0	5	0	0	0	0

DATE	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)	LEAD, TOTAL RECOVERABLE (UG/L AS PB) (01051)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)	MERCURY TOTAL RECOVERABLE (UG/L AS HG) (71900)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI) (01067)	SELENIUM, TOTAL (UG/L AS SE) (01147)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)
OCT							
25...	490	5	30	.0	2	0	10
MAR							
27...	1100	13	50	.1	2	0	20
SEP							
19...	360	12	20	--	4	0	10

06181995 BEAVER CREEK AT INTERNATIONAL BOUNDARY--Continued

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPER-ATURE (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)
OCT					
25...	1100	6.0	1.3	40	.14
SEP					
19...	1130	14.5	.92	32	.08

06183450 BIG MUDDY CREEK NEAR ANTELOPE, MT

LOCATION.--Lat 48°40'22", long 104°30'42", in SE¼NW¼ sec.27, T.34 N., R.55 E., Sheridan County, Hydrologic Unit 10060006, on right bank, 3 mi (5 km) southwest of Antelope, and 7 mi (11 km) south of Plentywood, MT.

DRAINAGE AREA.--1,171 mi² (3,033 km²).

WATER DISCHARGE RECORDS

PERIOD OF RECORD.--October 1978 to September 1979.

GAGE.--Water-stage recorder. Altitude of gage is 2,000 ft (610 m), from topographic map.

REMARKS.--Water-discharge records fair except those for winter period and those for periods of no gage-height record (Oct. 1-25, Jan. 5 to Mar. 21) and those for period of backwater (Aug. 11 to Sept. 30), which are poor. Several known diversions for irrigation above station.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,870 ft³/s (81.3 m³/s) Apr. 18, gage height, 17.06 ft (5.200 m); minimum daily, 0.10 ft³/s (0.003 m³/s) on many days in August and September.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	7.2	7.0	3.6	2.3	2.1	210	202	45	16	4.8	.10
2	11	7.2	6.6	3.8	2.1	2.0	170	170	45	8.7	4.8	.10
3	10	8.7	7.4	3.6	2.1	1.8	140	145	45	6.9	4.6	.10
4	9.8	8.7	7.2	3.3	2.1	1.6	110	129	44	6.1	4.4	.10
5	9.6	7.9	7.0	3.5	2.3	2.1	90	118	44	5.8	4.4	.10
6	9.4	8.3	6.8	3.4	2.6	2.4	100	127	41	5.6	4.3	.10
7	9.3	8.7	7.0	3.3	2.4	2.9	110	165	38	5.5	4.4	.10
8	9.2	8.7	6.4	3.6	2.2	3.1	110	198	38	5.6	4.4	.10
9	9.0	8.7	6.8	3.5	2.3	2.9	120	260	36	5.6	4.2	.10
10	9.0	7.9	7.6	3.4	2.2	3.1	300	264	35	5.6	4.0	.10
11	8.8	7.9	8.1	3.3	2.0	3.5	700	198	33	5.5	2.0	.10
12	8.7	7.9	7.8	3.2	2.1	4.0	920	150	31	5.4	1.0	.10
13	8.6	8.0	7.2	3.1	2.2	3.9	1200	128	30	5.3	.50	.10
14	8.4	8.2	6.4	3.0	2.0	3.8	900	113	24	5.1	.50	.10
15	8.4	8.4	6.3	3.0	1.4	4.0	700	107	22	4.9	.45	.10
16	8.2	8.5	6.0	3.1	1.2	4.5	585	102	20	5.2	.45	.15
17	8.0	8.2	5.9	3.2	1.4	4.4	960	97	18	6.0	.40	.15
18	7.8	8.0	5.8	3.3	1.6	4.4	2500	93	17	5.8	.30	.15
19	7.8	7.8	5.8	3.2	1.8	4.4	2740	92	16	5.7	.20	.18
20	7.7	7.6	5.8	3.4	1.6	12	2440	93	14	5.4	.10	.15
21	7.6	7.4	5.6	3.5	1.4	32	2290	94	12	5.3	.10	.15
22	7.6	7.0	5.8	3.3	1.6	90	1650	94	18	5.1	.10	.15
23	7.6	7.4	5.8	3.1	1.4	140	926	89	516	5.1	.10	.15
24	7.5	7.8	5.6	3.3	1.8	200	710	84	349	5.1	.10	.18
25	7.5	7.6	5.6	3.1	2.2	300	616	73	111	5.0	.10	.20
26	7.5	7.2	5.4	2.9	2.3	520	516	66	74	4.8	.10	.20
27	7.5	7.2	5.2	2.6	2.2	800	405	61	54	4.4	.10	.30
28	10	7.2	4.6	2.7	2.2	920	334	57	39	4.3	.10	.30
29	13	7.8	4.0	2.5	---	600	281	52	28	4.7	.10	.30
30	7.9	7.6	3.5	2.5	---	360	220	50	22	4.7	.10	.30
31	7.2	---	3.5	2.2	---	280	---	48	---	4.6	.10	---
TOTAL	271.6	236.7	189.5	98.5	55.0	4314.9	23053	3719	1859	178.8	51.30	4.51
MEAN	8.76	7.89	6.11	3.18	1.96	139	768	120	62.0	5.77	1.65	.15
MAX	13	8.7	8.1	3.8	2.6	920	2740	264	516	16	4.8	.30
MIN	7.2	7.0	3.5	2.2	1.2	1.6	90	48	12	4.3	.10	.10
AC-FT	539	469	376	195	109	8560	45730	7380	3690	355	102	8.9

WTR YR 1979 TOTAL 34031.81 MEAN 93.2 MAX 2740 MIN .10 AC-FT 67500

06183450 BIG MUDDY CREEK NEAR ANTELOPE, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1978 to September 1979.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	HARD-NESS (MG/L AS CACO3) (00900)
OCT 25...	1430	7.1	2	1630	8.6	8.0	7.0	20	10.1	90	380
DEC 13...	1545	6.8	0	2890	7.8	-2.0	.5	6.5	4.5	33	680
MAR 27...	1715	861	70	468	8.0	-6.0	.0	31	9.6	71	160
APR 13...	1400	1300	2	350	7.3	3.0	1.0	230	10.2	78	110
JUN 20...	1800	14	2	2280	8.6	23.0	23.5	12	8.9	112	470
AUG 15...	1100	.49	0	2850	8.6	18.5	17.5	9.0	9.4	102	490

DATE	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)
OCT 25...	0	58	56	270	6.1	9.5	440	470	25	.3	9.2
DEC 13...	0	91	110	490	8.2	15	840	860	18	.4	12
MAR 27...	8	32	19	47	1.6	14	150	110	6.0	.1	11
APR 13...	0	22	13	30	1.3	8.1	120	52	2.8	.1	11
JUN 20...	0	60	78	390	7.8	9.1	560	740	18	.3	2.6
AUG 15...	0	46	92	560	11	10	550	1100	35	.4	.7

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P) (00671)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
OCT 25...	1160	1.58	22.2	.03	.11	.99	1.1	.10	.02	680	20
DEC 13...	2100	2.86	38.6	.33	.83	1.2	2.0	.33	.23	1600	110
MAR 27...	330	.45	767	.92	.09	1.1	1.2	.22	.17	210	180
APR 13...	212	.29	744	.30	.07	1.8	1.9	.31	.03	180	290
JUN 20...	1640	2.23	62.0	.01	.02	.72	.74	.03	.00	1600	20
AUG 15...	2180	2.96	2.88	.00	.02	1.2	1.2	.05	.00	1200	20

06183450 BIG MUDDY CREEK NEAR ANTELOPE, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	ALUMINUM, DISSOLVED (UG/L AS AL) (01106)	ARSENIC DISSOLVED (UG/L AS AS) (01000)	BERYLLIUM, DISSOLVED (UG/L AS BE) (01010)	CADMIUM DISSOLVED (UG/L AS CD) (01025)	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COPPER, DISSOLVED (UG/L AS CU) (01040)
OCT 25...	1430	20	2	0	4	0	4
DEC 13...	1545	0	2	0	--	0	2
MAR 27...	1715	60	2	0	0	0	0
APR 13...	1400	0	6	<1	2	0	4
JUN 20...	1800	0	2	0	0	0	1
AUG 15...	1100	0	2	0	0	10	3

DATE	LEAD, DISSOLVED (UG/L AS PB) (01049)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MERCURY DISSOLVED (UG/L AS HG) (71890)	NICKEL, DISSOLVED (UG/L AS NI) (01065)	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	VANADIUM, DISSOLVED (UG/L AS V) (01085)	ZINC, DISSOLVED (UG/L AS ZN) (01090)
OCT 25...	0	30	.0	7	0	.0	0
DEC 13...	--	130	.0	5	1	.0	10
MAR 27...	0	70	.0	0	1	1.9	20
APR 13...	0	60	.1	4	0	1.2	20
JUN 20...	1	10	.6	6	0	.0	20
AUG 15...	0	10	.4	4	0	<1.0	10

DATE	TIME	ALUMINUM, TOTAL RECOVERABLE (UG/L AS AL) (01105)	ARSENIC TOTAL (UG/L AS AS) (01002)	BERYLLIUM, TOTAL RECOVERABLE (UG/L AS BE) (01012)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD) (01027)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)
OCT 25...	1430	500	3	0	1	0	6
APR 13...	1400	7600	5	0	1	20	12
AUG 15...	1100	400	2	10	0	20	3

DATE	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)	LEAD, TOTAL RECOVERABLE (UG/L AS PB) (01051)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)	MERCURY TOTAL RECOVERABLE (UG/L AS HG) (71900)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI) (01067)	SELENIUM, TOTAL (UG/L AS SE) (01147)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)
OCT 25...	920	6	100	.0	7	0	20
APR 13...	9900	16	280	.1	15	1	60
AUG 15...	480	15	40	.3	5	0	10

06183450 BIG MUDDY CREEK NEAR ANTELOPE, MT--Continued

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPERATURE (DEG C) (00010)	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT						
25...	1450	7.0	7.1	94	1.8	--
DEC						
13...	1545	.5	6.6	76	1.4	--
MAR						
27...	1715	.0	861	90	209	98
APR						
13...	1400	1.0	1300	356	1250	98
JUN						
20...	1800	23.5	14	45	1.7	--
JUL						
19...	0930	23.5	5.7	62	.95	--
AUG						
15...	1100	17.5	.49	76	.10	--

06185500 MISSOURI RIVER NEAR CULBERTSON, MT

LOCATION.--Lat 48°07'24", long 104°28'30", in SE¼NW¼ sec.3, T.27 N., R.56 E., Richland County, Hydrologic Unit 10060005, on right bank at downstream side of bridge on State Highway 16, 3 mi (5 km) southeast of Culbertson, 9.6 mi (15.4 km) downstream from Big Muddy Creek, and at mile 1,620.76 (2,607.80 km).

DRAINAGE AREA.--91,557 mi² (237,133 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1941 to December 1951, April 1958 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,883.4 ft (574.06 m) National Geodetic Vertical Datum of 1929 (Corps of Engineers bench mark). July 1 to Nov. 6, 1941, water-stage recorder at site 400 ft (120 m) upstream at datum 0.11 ft (0.034 m) higher. Nov. 7, 1941, to Aug. 17, 1950, water-stage recorder at site 580 ft (177 m) downstream at present datum. Aug. 18, 1950, to Dec. 31, 1951, nonrecording gage on bridge at present datum. Apr. 1, 1958, to Nov. 1, 1967, water-stage recorder at site 580 ft (177 m) downstream at present datum.

REVISIONS.--WSP 1729: Drainage area.

REMARKS.--Water-discharge records good except those for Apr. 19 to June 19, which are fair, and those for winter period, which are poor. Flow partly regulated by Fort Peck Lake (see p. 194) and many other reservoirs above station. Diversions for irrigation of about 1,030,400 acres (4,170 km²) above station.

AVERAGE DISCHARGE.--29 years (1943-51, 1958-79, after operational level at Fort Peck Lake was reached), 10,950 ft³/s (310.1 m³/s), 7,933,000 acre-ft/yr (9.78 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 78,200 ft³/s (2,210 m³/s) Mar. 26, 1943, gage height, 14.80 ft (4.511 m), from rating curve extended above 30,000 ft³/s (850 m³/s); maximum gage height observed, 19.66 ft (5.992 m) Apr. 14, 1979 (backwater from ice jam); minimum daily discharge, 575 ft³/s (16.3 m³/s) Nov. 22, 1941.

EXTREMES FOR CURRENT YEAR.--Maximim daily discharge, 52,000 ft³/s (1,470 m³/s) Apr. 18; maximum gage height observed, 19.66 ft (5.992 m) Apr. 14 (backwater from ice jam); minimum daily discharge, 8,560 ft³/s (242 m³/s) Sept. 18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15000	13800	13000	12100	15000	15400	21500	38100	17000	14600	14000	10600
2	14900	12900	12000	13000	15000	15400	21500	38400	16900	14600	14000	10200
3	15100	12300	11000	14000	15000	15400	21000	38300	16500	14700	14300	10200
4	14900	11900	12000	14000	15500	15800	20000	39100	16500	14600	14500	10100
5	14800	11700	12200	13000	15600	16000	18000	39600	16400	14500	14600	10200
6	14700	12200	12100	12000	15600	16000	18000	37600	16000	14500	14600	10100
7	14500	12600	12000	11800	15600	16000	18500	36000	15600	14500	14900	10200
8	14100	13000	11600	11800	15600	16000	20000	35400	15100	14500	15000	10100
9	13600	11700	11600	11800	15600	16000	25000	34600	14700	15700	15000	9940
10	14100	11900	11600	11800	15600	15800	32000	33700	14500	16800	14900	9140
11	14200	13100	12000	11800	15700	16000	33000	31400	14800	16700	14800	9090
12	14000	13800	12000	11700	15800	16000	33000	29000	14400	16100	14800	9040
13	13800	14200	12000	11600	15600	15900	31000	26500	14600	15700	14700	8890
14	13800	14300	12000	11500	15500	16000	29000	24600	14600	15200	14600	8890
15	13900	14200	11800	11500	15500	16000	28000	22700	14600	14800	14300	8910
16	13900	14000	11800	11700	15800	16000	35000	20700	14400	14600	14600	8960
17	13800	13900	12000	12000	15500	15000	50000	20500	14200	14600	14100	8840
18	13700	13800	12000	12500	15500	14000	52000	20100	14200	14300	13600	8560
19	13700	13000	12000	13000	15600	12000	48800	20500	13700	13900	13500	8760
20	13700	12500	12000	13600	15600	11500	45100	20200	13800	14100	13100	8940
21	13900	11500	12000	14000	15500	12500	41500	20100	13900	14000	11700	8690
22	13900	12000	11900	14500	15500	13500	38400	20000	14200	13900	11700	8890
23	13800	13000	12100	15000	15500	14500	37700	19900	14400	13800	11800	8910
24	13800	13500	12100	15000	15500	16000	37800	19800	14400	13900	11600	8840
25	13800	13000	12100	15000	15600	17000	38800	19000	14300	13700	11600	8760
26	13800	13000	12000	15000	15800	18000	38100	18600	14200	13600	11600	8790
27	13800	14200	12000	15000	15700	20500	39100	16700	14200	13700	11700	8860
28	13700	14000	12100	14500	15500	25000	37900	18500	14200	13900	11800	8590
29	13700	14000	12000	14500	---	23500	37600	18300	14500	14200	11500	8790
30	13700	14000	11500	14500	---	22500	37800	17800	14600	14500	9770	8860
31	13800	---	11500	15000	---	21500	---	17300	---	14400	10400	---
TOTAL	435900	393000	370000	408200	434800	510700	985100	812600	445400	452600	413070	277840
MEAN	14060	13100	11940	13170	15530	16470	32840	26220	14850	14600	13320	9261
MAX	15100	14300	13000	15000	15800	25000	52000	39600	17000	16800	15000	10600
MIN	13600	11500	11000	11500	15000	11500	18000	16700	13700	13600	9770	8560
AC-FT	864600	779500	733900	809700	862400	1013000	1954000	1612000	883500	897700	819300	551100

CAL YR 1978 TOTAL 4928630 MEAN 13500 MAX 27000 MIN 7750 AC-FT 9776000
WTR YR 1979 TOTAL 5939410 MEAN 16270 MAX 52000 MIN 8560 AC-FT 11780000

06185500 MISSOURI RIVER NEAR CULBERTSON, MT--Continued
(National Stream Quality Accounting Network)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1946, 1965 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: July 1965 to current year.
WATER TEMPERATURES: July 1965 to current year.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 880 micromhos June 24, July 10, 1979; minimum daily, 338 micromhos Mar. 30, 1967.
WATER TEMPERATURES: Maximum daily, 24.5°C July 17, 1966; minimum daily, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 880 micromhos June 24, July 10; minimum daily, 528 micromhos Mar. 31.
WATER TEMPERATURES: Maximum daily, 18.5°C July 8; minimum daily, 0.0°C on many days during November to April.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)
OCT 03...	1530	15000	0	704	8.2	17.5	12.0	70	9.4	93
NOV 13...	1500	14600	70	760	8.1	-5.0	1.5	29	11.7	89
DEC 12...	1500	12000	83	760	8.4	-4.0	.5	4.1	12.2	90
JAN 09...	1500	11500	0	712	8.3	-12.0	.0	7.2	11.9	86
FEB 14...	1700	13300	84	810	8.5	-20.0	.0	27	12.9	93
MAR 07...	1500	14700	63	780	8.3	6.0	.0	8.2	11.6	86
APR 19...	1630	48800	80	603	8.1	8.0	6.0	370	9.7	84
MAY 15...	1700	22500	0	910	8.1	25.0	9.5	140	10.1	95
JUN 19...	1200	13700	3	864	8.2	21.0	14.0	27	9.2	97
JUL 25...	1600	13700	13	758	8.1	25.5	16.0	25	8.3	93
AUG 01...	1100	14000	1	810	8.2	25.0	15.5	23	8.8	94
SEP 17...	1700	9250	1	846	8.4	26.0	14.5	21	9.2	96

DATE	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)
OCT 03...	K43	K15	230	83	57	22	56	1.6	4.1	150
NOV 13...	K6	K6	240	94	58	24	65	1.8	--	150
DEC 12...	K1	K7	250	100	60	25	65	1.8	4.9	150
JAN 09...	K2	K2	270	110	67	25	64	1.7	4.8	160
FEB 14...	K1	K1	260	110	58	27	72	2.0	4.5	150
MAR 07...	<1	<1	260	110	63	25	63	1.7	4.2	150
APR 19...	67	860	170	62	39	18	60	2.0	4.9	110
MAY 15...	K16	K22	250	100	59	26	91	2.5	5.4	150
JUN 19...	K6	K17	260	130	66	29	84	2.2	4.6	150
JUL 25...	K14	K16	240	89	53	26	71	2.0	4.9	150
AUG 01...	K21	K9	260	100	62	26	66	1.8	4.6	160
SEP 17...	K4	K12	270	120	63	27	77	2.0	4.3	150

06185500 MISSOURI RIVER NEAR CULBERTSON, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)
OCT 03...	190	8.5	.7	6.1	447	437	.61	18100	.11
NOV 13...	200	6.9	.6	7.5	479	454	.65	19100	.05
DEC 12...	220	9.0	.7	6.7	488	482	.66	15800	.04
JAN 09...	230	9.1	.6	5.9	501	503	.68	15600	.05
FEB 14...	230	9.4	.6	7.5	528	499	.72	19000	.09
MAR 07...	240	9.3	.5	7.2	488	502	.66	19400	.13
APR 19...	170	5.7	.4	8.5	389	373	.53	51300	.26
MAY 15...	290	9.8	.5	6.6	593	578	.81	36000	.20
JUN 19...	290	9.4	.6	5.5	586	579	.80	21700	.18
JUL 25...	240	9.0	.6	6.8	534	501	.73	19800	.11
AUG 01...	250	8.6	.7	6.6	538	521	.73	20300	.10
SEP 17...	270	9.3	.8	7.3	553	550	.75	13800	.14

DATE	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, KJEL-DAHL, TOTAL (MG/L AS N) (00625)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C) (00689)
OCT 03...	.06	.39	.45	.26	.15	.02	5.1	--	--
NOV 13...	.03	.23	.26	--	.06	.01	4.4	--	--
DEC 12...	.01	.28	.29	.20	.04	.02	--	2.9	.3
JAN 09...	.01	.23	.24	--	.03	.02	3.0	--	--
FEB 14...	.05	.23	.28	.18	.04	.02	3.1	--	--
MAR 07...	.10	.28	.38	--	.05	.04	--	4.7	--
APR 19...	.07	1.6	1.7	.53	.41	.02	19	--	--
MAY 15...	.03	.52	.55	--	.26	.03	3.0	--	--
JUN 19...	.02	.68	.70	.24	.08	.01	--	4.8	.8
JUL 25...	.02	.19	.21	.34	.03	.06	23	--	--
AUG 01...	.00	.26	.26	--	.04	.03	4.4	--	--
SEP 17...	.00	.42	.42	.07	.01	.01	--	4.3	.2

06185500 MISSOURI RIVER NEAR CULBERTSON, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)
DEC 12...	1500	3	3	0	0	1	2	10	0
MAR 07...	1500	2	2	100	0	1	0	0	0
JUN 19...	1200	2	2	100	0	1	1	10	0
SEP 17...	1700	3	3	0	50	0	<1	10	0

DATE	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO) (01037)	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)
DEC 12...	1	1	3	3	460	30	3	4	10
MAR 07...	0	0	6	1	400	0	10	0	20
JUN 19...	5	2	9	1	4000	10	16	3	80
SEP 17...	0	<3	2	2	1800	<10	0	0	50

DATE	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG) (01077)	SILVER, DIS-SOLVED (UG/L AS AG) (01075)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
DEC 12...	20	.5	.7	1	2	0	0	10	10
MAR 07...	10	--	.5	1	2	0	0	30	10
JUN 19...	0	.6	.7	2	1	0	0	30	10
SEP 17...	10	.3	--	1	1	0	0	10	[illegible]

PESTICIDE ANALYSES, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	PCB, TOTAL (UG/L) (39516)	PCB, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39519)	ALDRIN, TOTAL (UG/L) (39330)	ALDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39333)	CHLOR-DANE, TOTAL (UG/L) (39350)	CHLOR-DANE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39351)	DDD, TOTAL (UG/L) (39360)	DDD, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39363)	DDE, TOTAL (UG/L) (39365)	DDE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39368)
NOV 13...	1500	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MAR 07...	1500	ND	--	ND	--	ND	--	ND	--	ND	--
MAY 15...	1700	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AUG 01...	1100	ND	--	ND	--	ND	--	ND	--	ND	--

MISSOURI RIVER MAIN STEM

06185500 MISSOURI RIVER NEAR CULBERTSON, MT--Continued

PESTICIDE ANALYSES, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	DDT, TOTAL (UG/L) (39370)	DDT, TOTAL IN BOTTOM MATERIAL (UG/KG) (39375)	DIAZINON, TOTAL (UG/L) (39570)	DIAZINON, TOTAL IN BOTTOM MATERIAL (UG/KG) (39571)	DIELDRIN TOTAL (UG/L) (39380)	DIELDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG) (39383)	ENDRIN, TOTAL (UG/L) (39390)	ENDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG) (39393)	ETHION, TOTAL (UG/L) (39398)	ETHION, TOTAL IN BOTTOM MATERIAL (UG/KG) (39399)
NOV										
13...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MAR										
07...	ND	--	ND	--	ND	--	ND	--	ND	--
MAY										
15...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AUG										
01...	ND	--	ND	--	ND	--	ND	--	ND	--

DATE	HEPTACHLOR, TOTAL (UG/L) (39410)	HEPTACHLOR, TOTAL IN BOTTOM MATERIAL (UG/KG) (39413)	HEPTACHLOR EPOXIDE TOTAL (UG/L) (39420)	HEPTACHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG) (39423)	LINDANE TOTAL (UG/L) (39340)	LINDANE TOTAL IN BOTTOM MATERIAL (UG/KG) (39343)	MALATHION, TOTAL (UG/L) (39530)	MALATHION, TOTAL IN BOTTOM MATERIAL (UG/KG) (39531)	METHOXYCHLOR, TOTAL (UG/L) (39480)	METHOXYCHLOR, TOT. IN BOTTOM MATL. (UG/KG) (39481)
NOV										
13...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MAR										
07...	ND	--	ND	--	ND	--	ND	--	ND	--
MAY										
15...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AUG										
01...	ND	--	ND	--	ND	--	ND	--	ND	--

DATE	METHYL PARATHION, TOTAL (UG/L) (39600)	METHYL PARATHION, TOT. IN BOTTOM MATL. (UG/KG) (39601)	METHYL TRITHION, TOTAL (UG/L) (39790)	METHYL TRITHION, TOT. IN BOTTOM MATL. (UG/KG) (39791)	PARATHION, TOTAL (UG/L) (39540)	PARATHION, TOTAL IN BOTTOM MATERIAL (UG/KG) (39541)	TOXAPHENE, TOTAL (UG/L) (39400)	TOXAPHENE, TOTAL IN BOTTOM MATERIAL (UG/KG) (39403)	TOTAL TRITHION (UG/L) (39786)	TRITHION, TOTAL IN BOTTOM MATERIAL (UG/KG) (39787)
NOV										
13...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MAR										
07...	ND	--	ND	--	ND	--	ND	--	ND	--
MAY										
15...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AUG										
01...	ND	--	ND	--	ND	--	ND	--	ND	--

06185500 MISSOURI RIVER NEAR CULBERTSON, MT--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	700	743	729	851	754	779	548	691	840	802	776	811
2	709	752	749	756	771	761	562	646	849	831	780	824
3	709	744	783	732	790	755	564	688	825	839	772	823
4	720	739	738	745	815	735	611	692	819	820	761	828
5	728	737	754	748	761	768	639	691	806	819	775	823
6	727	734	683	747	756	773	665	693	800	841	792	819
7	738	733	647	735	765	764	591	697	800	810	790	812
8	725	732	772	756	788	689	641	691	776	800	793	810
9	730	732	772	735	737	764	700	730	775	801	796	812
10	726	733	777	731	752	733	736	742	765	880	790	814
11	732	724	762	752	756	734	686	733	773	779	779	811
12	732	725	754	718	842	730	654	735	765	840	773	815
13	731	728	754	737	848	788	598	740	768	812	774	818
14	740	741	743	764	764	722	554	748	778	801	772	819
15	732	743	739	709	835	749	549	758	800	805	776	820
16	728	744	752	732	822	670	592	780	828	776	782	816
17	731	741	753	715	803	757	612	804	810	756	778	810
18	732	733	772	712	777	674	664	810	813	781	771	811
19	732	728	776	722	683	758	641	770	852	801	776	811
20	735	709	805	726	682	772	591	769	809	810	785	812
21	740	717	813	697	707	808	596	789	780	831	789	815
22	735	720	782	738	748	804	646	769	805	831	794	814
23	737	728	771	743	800	748	674	781	810	810	785	813
24	737	707	766	654	752	648	668	767	880	799	777	810
25	740	702	756	651	762	705	703	750	868	791	782	811
26	740	705	752	707	721	650	719	756	836	782	780	811
27	741	705	775	712	724	661	729	759	810	796	776	811
28	745	706	755	706	768	662	746	736	795	779	782	812
29	742	707	754	751	---	627	761	730	808	775	769	811
30	751	710	769	---	---	542	778	746	810	776	798	808
31	755	---	828	778	---	528	---	731	---	779	806	---
MEAN	732	727	771	731	767	719	650	742	808	805	782	815

WTR YR 1979 MEAN 754 MAX 880 MIN 528

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13.5	7.0	.0	.0	.0	.0	.0	6.0	10.0	16.5	15.5	15.5
2	13.0	7.5	.0	.0	.0	.0	.0	5.0	11.0	17.5	16.5	15.5
3	13.5	8.0	.0	.0	.0	.0	.0	5.5	12.5	17.5	16.5	16.0
4	11.5	8.5	.0	.0	.0	.0	.0	4.5	13.5	18.0	16.5	16.0
5	10.0	7.0	.0	.0	.0	.0	.0	5.5	14.5	17.5	16.5	15.5
6	9.0	5.5	.0	.0	.0	.0	.0	4.5	14.0	17.5	16.0	15.0
7	10.0	6.0	.0	.0	.0	.0	.0	4.0	12.0	17.5	16.5	14.5
8	11.5	7.0	.0	.0	.0	.0	.0	4.5	11.5	16.5	16.5	14.5
9	11.0	7.5	.0	.0	.0	.0	---	4.5	10.5	18.0	16.5	15.5
10	12.0	5.0	.0	.0	.0	.0	.0	4.0	10.5	17.0	15.5	15.5
11	12.5	3.5	.0	.0	.0	.0	.0	4.5	12.0	17.0	15.0	14.0
12	12.0	2.0	.0	.0	.0	.0	.0	5.5	14.5	17.0	15.5	14.0
13	10.0	1.5	.0	.0	.0	.0	.0	7.0	15.5	15.5	14.5	12.0
14	9.5	1.5	.0	.0	.0	.0	.0	8.0	16.5	15.5	14.0	10.0
15	9.5	1.5	.0	.0	.0	.0	.5	8.0	15.0	15.5	14.0	12.0
16	9.5	1.5	.0	.0	.0	.0	.0	10.0	15.0	15.0	13.5	13.0
17	10.5	2.0	.0	.0	.0	.0	3.0	9.5	14.0	15.5	14.0	14.0
18	10.0	1.0	.0	.0	.0	.0	6.0	9.0	14.0	16.0	15.5	14.0
19	10.5	.0	.0	.0	.0	.0	5.5	9.5	17.0	17.0	16.0	14.0
20	10.0	.0	.0	.0	.0	.0	5.5	9.0	17.0	17.5	15.5	14.0
21	11.0	.0	.0	.0	.0	.0	5.5	9.5	16.0	17.0	15.0	13.0
22	10.0	.5	.0	.0	.0	.0	6.0	10.0	17.5	16.5	16.5	13.0
23	8.5	.0	.0	.0	.0	.0	5.5	10.0	14.5	17.0	16.0	13.0
24	9.5	.0	.0	.0	.0	.0	4.0	11.5	15.0	16.5	15.5	13.0
25	8.5	.5	.0	.0	.0	.0	3.5	13.0	15.0	16.0	15.0	13.0
26	8.5	1.5	.0	.0	.0	.0	4.0	14.0	15.0	15.5	15.0	13.0
27	8.0	1.0	.0	.0	.0	.0	4.5	15.0	16.0	15.0	15.0	13.0
28	9.0	.5	.0	.0	.0	.0	6.0	15.0	15.5	15.5	14.5	13.0
29	9.5	.5	.0	.0	---	.0	5.5	13.0	15.5	16.0	14.0	13.0
30	8.5	.0	.0	.0	---	.0	5.5	11.0	15.5	15.5	14.5	13.0
31	8.0	---	.0	.0	---	.0	---	10.0	---	15.0	15.5	---
MEAN	10.5	3.0	.0	.0	.0	.0	2.5	8.5	14.0	16.5	15.5	14.0

WTR YR 1979 MEAN 7.0 MAX 16.5 MIN .0

MISSOURI RIVER MAIN STEM

06185500 MISSOURI RIVER NEAR CULBERTSON, MT--Continued

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPERATURE (DEG C) (00010)	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT						
03...	1530	12.0	15000	506	20500	43
NOV						
15...	1500	1.5	14800	176	7030	67
DEC						
12...	1500	.5	12000	19	616	--
JAN						
09...	1500	.0	11500	120	3730	65
FEB						
14...	1700	.0	13300	70	2510	--
MAR						
07...	1500	.0	14700	150	5950	97
APR						
19...	1630	6.0	48800	2370	312000	56
MAY						
15...	1700	9.5	22500	596	36200	73
JUN						
19...	1200	14.0	13700	401	14800	29
JUL						
25...	1600	18.0	13700	251	9280	51
AUG						
01...	1100	15.5	14000	125	4730	76
SEP						
17...	1700	14.5	9250	143	3570	54

DATE	TIME	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	BAROMETRIC PRESSURE (MM OF HG) (00025)	WEATHER (WMO CODE NUMBER) (00041)
JUL , 1979									
31...	1900	814	8.3	29.0	17.0	8.9	98	712	0
31...	2000	810	8.3	28.0	17.0	8.8	97	710	0
31...	2100	810	8.3	--	15.5	8.8	96	--	--
31...	2200	830	8.3	24.0	16.5	8.7	95	710	0
31...	2300	--	--	--	16.5	8.7	95	--	--
31...	2400	--	--	--	16.0	8.7	94	--	--
AUG									
01...	0100	--	--	--	16.0	8.7	94	--	--
01...	0200	--	--	--	16.0	8.7	94	--	--
01...	0300	--	--	--	15.5	8.7	93	--	--
01...	0400	--	--	--	15.5	8.7	93	--	--
01...	0500	824	8.3	19.0	15.5	8.7	93	709	0
01...	0600	--	--	--	15.0	8.7	92	--	--
01...	0700	820	8.3	--	15.0	8.7	92	--	--
01...	0800	814	8.3	--	15.0	8.7	92	--	--
01...	0900	810	8.3	21.0	15.0	8.7	92	708	0
01...	1000	810	8.3	--	15.0	8.7	92	--	--
01...	1100	810	8.2	25.0	15.5	8.8	94	708	1
01...	1200	810	8.3	--	15.5	8.8	94	--	--
01...	1300	--	--	--	16.0	8.8	95	--	--
01...	1400	--	8.3	30.0	16.5	8.8	96	--	1
01...	1500	810	8.3	30.0	16.5	8.7	95	--	1
01...	1600	--	8.3	32.0	16.5	8.7	95	--	1
01...	1700	820	8.3	30.0	17.0	8.7	96	708	1
01...	1800	816	8.3	30.0	17.0	8.8	97	--	1
01...	1900	812	8.3	29.0	17.0	8.8	97	708	1

06185500 MISSOURI RIVER NEAR CULBERTSON, MT--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

PHYTOLANKTON

DATE	NOV 15,78	MAR 7,79	MAY 15,79	JUN 19,79
TIME	1500	1500	1700	1200
TOTAL CELLS/ML	1500	160	39	9100
DIVERSITY: DIVISION	1.4	0.0	0.9	1.1
.CLASS	1.4	0.0	0.9	1.1
..ORDER	1.6	0.0	0.9	1.8
...FAMILY	1.8	0.0	0.9	2.4
....GENUS	0.0	0.0	0.9	2.5

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)								
.CHLOROPHYCEAE								
..CHLOROCOCCALES								
...MICRACTINIACEAE								
....MICRACTINIUM	14	1	--	-	--	-	130	1
...OOCYSTACEAE								
....ANKISTRODESMUS	160	10	--	-	--	-	*	0
....KIRCHNERIELLA	58	4	--	-	--	-	--	-
....OOCYSTIS	120	7	--	-	--	-	52	1
...SCENEDESMACEAE								
....ACTINASTRUM	58	4	--	-	--	-	150	2
....SCENEDESMUS	--	-	--	-	--	-	880	10
....TETRASTRUM	--	-	--	-	--	-	52	1
..TETRASPORALES								
...PALMELLACEAE								
....SPHAEROCYSTIS	--	-	--	-	--	-	1100	12
..VOLVOCALES								
...CHLAMYDOMONADACEAE	24	2	--	-	--	-	--	-
....CHLAMYDOMONAS	--	-	--	-	13*	33	140	2
...VOLVOCACEAE								
....PANDORINA	--	-	--	-	--	-	210	2
CHRYSOPHYTA								
.BACILLARIOPHYCEAE								
..CENTRALES								
...COSCINODISCACEAE								
....CYCLOTELLA	24	2	--	-	--	-	120	1
..PENNALES								
...DIATOMACEAE								
....DIATOMA	--	-	--	-	26*	67	--	-
...FRAGILARIACEAE								
....ASTERIONELLA	890*	58	160*	100	--	-	--	-
....SYNEDRA	--	-	--	-	--	-	*	0
...GOMPHONEMATACEAE								
....GOMPHONEMA	--	-	--	-	--	-	*	0
...NAVICULACEAE								
....NAVICULA	--	-	--	-	--	-	65	1
...NITZSCHIACEAE								
....NITZSCHIA	--	-	--	-	--	-	160	1
CYANOPHYTA (BLUE-GREEN ALGAE)								
.CYANOPHYCEAE								
..CHROOCOCCALES								
...CHROOCOCCACEAE								
....ANACYSTIS	--	-	--	-	--	-	390	4
..HORMOGONALES								
...NOSTOCACEAE								
....ANABAENA	--	-	--	-	--	-	990	11
...OSCILLATORIACEAE								
....OSCILLATORIA	170	11	--	-	--	-	4600*	51
EUGLENOPHYTA (EUGLENOIDS)								
.EUGLENOPHYCEAE								
..EUGLENALES								
...EUGLENACEAE								
....TRACHELOMONAS	14	1	--	-	--	-	--	-

06185500 MISSOURI RIVER NEAR CULBERTSON, MT--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

PHYTOPLANKTON

DATE TIME	JUL 25,79 1600	AUG 1,79 1100	SEP 17,79 1700
TOTAL CELLS/ML	2400	78	1900
DIVERSITY: DIVISION	1.6	0.0	1.1
.CLASS	1.6	0.0	1.1
..ORDER	2.5	0.0	1.9
...FAMILY	2.6	0.0	2.5
....GENUS	3.1	0.0	3.2

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...CHARACIACEAE						
....SCHROEDERIA	14	1	--	-	--	-
...OOCYSTACEAE						
....ANKISTRODESMUS	55	2	--	-	110	6
....CHODATELLA	--	-	--	-	29	2
....CLOSTERIOPSIS	--	-	--	-	29	2
....DICTYOSPHAERIUM	--	-	--	-	86	5
....SELENASTRUM	14	1	--	-	--	-
...SCENEDESMACEAE						
....ACTINASTRUM	330	14	--	-	--	-
....SCENEDESMUS	140	6	--	-	160	8
....TETRASTRUM	--	-	--	-	290#	15
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CARTERIA	--	-	--	-	14	1
....CHLAMYDOMONAS	96	4	--	-	57	3
CHRYSOPHYTA						
.BACILLARIOPHYCEAE						
..CENTRALES						
...COSCINODISCACEAE						
....CYCLOTELLA	120	5	--	-	360#	19
....MELOSIRA	120	5	78#	100	130	7
..PENNALES						
...FRAGILARIACEAE						
....ASTERIONELLA	--	-	--	-	260	14
....FRAGILARIA	96	4	--	-	--	-
...NAVICULACEAE						
....NAVICULA	14	1	--	-	--	-
...NITZSCHIACEAE						
....NITZSCHIA	450#	19	--	-	330#	17
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..CHROOCOCCALES						
...CHROOCOCCACEAE						
....ANACYSTIS	370#	16	--	-	29	2
..HORMOGONALES						
...OSCILLATORIACEAE						
....OSCILLATORIA	520#	22	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)						
.EUGLENOPHYCEAE						
..EUGLENALES						
...EUGLENACEAE						
....EUGLENA	14	1	--	-	--	-
....TRACHELOMONAS	--	-	--	-	14	1

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

06186000 YELLOWSTONE LAKE AT BRIDGE BAY, YELLOWSTONE NATIONAL PARK

LOCATION.--Lat 44°32'00", long 110°26'20", Yellowstone National Park, Hydrologic Unit 10070001, at marina at Bridge Bay, 3.7 mi (6.0 km) southwest of lake outlet.

DRAINAGE AREA.--1,006 mi² (2,606 km²).

PERIOD OF RECORD.--October 1921 to current year (gage heights only). Prior to October 1966, published as Yellowstone Lake at Lake Hotel.

REVISED RECORDS.--WSP 1916: Drainage area.

GAGE.--Nonrecording gage usually read once daily except during winter months, when it is read occasionally. Datum of gage is 7,729.45 ft (2,355.936 m) National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1966, nonrecording gages at Lake Hotel dock at same datum.

REMARKS.--No regulation.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height observed, 7.34 ft (2.237 m) June 28, 30, 1974; minimum observed, -0.1 ft (-0.03 m) Dec. 7, 8, 1931.

EXTREMES FOR CURRENT YEAR.--Maximum gage height observed, 4.78 ft (1.457 m) July 2; minimum observed, 1.28 ft (0.390 m) Jan. 3.

GAGE HEIGHT (FEET ABOVE DATUM), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	1.92	---	---	1.46	---	---	---	3.44	---	---	2.56
2	---	---	---	---	---	---	---	---	3.46	4.78	3.44	2.54
3	---	---	---	1.28	---	---	---	---	---	---	---	2.51
4	---	---	---	---	---	---	---	---	---	4.68	---	2.48
5	---	---	---	---	---	---	---	---	---	4.64	---	2.45
6	---	---	---	---	---	---	---	---	---	4.65	3.28	2.44
7	---	---	---	---	---	---	---	---	---	4.57	3.24	2.42
8	---	---	---	---	---	---	---	---	3.95	4.52	---	2.40
9	---	---	---	---	---	---	---	---	---	4.48	3.15	2.35
10	---	---	---	---	---	---	---	---	---	4.45	3.13	2.30
11	---	---	---	---	---	---	---	---	3.98	---	3.08	2.28
12	---	---	---	---	---	---	---	---	4.03	4.36	3.03	2.26
13	---	---	---	---	---	---	---	---	---	4.30	3.03	2.21
14	---	---	1.40	---	---	1.72	---	---	---	4.24	3.07	2.17
15	---	---	---	---	---	---	---	---	4.36	4.23	3.01	2.15
16	---	---	---	---	---	---	---	---	4.36	4.18	3.01	2.12
17	---	---	---	1.42	---	---	---	---	4.50	4.13	2.95	2.12
18	---	---	---	---	---	---	---	---	---	4.14	2.94	2.08
19	2.22	---	---	---	---	---	---	---	4.62	---	2.92	2.07
20	---	---	---	---	---	---	---	1.96	---	4.04	2.90	2.06
21	---	---	---	---	---	---	---	2.02	4.53	3.94	2.86	2.02
22	---	---	---	---	1.58	---	---	2.12	4.63	3.90	2.86	1.98
23	---	1.56	---	---	---	---	---	---	4.64	---	2.82	1.92
24	---	---	---	---	---	---	---	2.48	---	3.85	2.86	1.90
25	2.04	---	---	---	---	---	---	2.64	---	3.85	2.75	1.90
26	---	---	---	---	---	---	---	2.74	4.62	3.74	2.73	1.90
27	---	---	---	---	---	---	1.52	2.90	---	3.72	2.68	1.88
28	---	---	---	---	---	---	---	2.98	4.68	3.70	2.69	1.86
29	---	---	---	---	---	---	---	3.28	4.70	3.64	2.65	1.86
30	---	---	---	---	---	---	---	3.28	---	3.55	2.64	---
31	---	---	---	---	---	---	---	---	---	3.56	2.62	---
TOTAL	---	---	---	---	---	---	---	---	---	---	---	---

06186500 YELLOWSTONE RIVER AT YELLOWSTONE LAKE OUTLET, YELLOWSTONE NATIONAL PARK

LOCATION.--Lat 44°34'03", long 110°22'48", Yellowstone National Park, Hydrologic Unit 10070001, on left bank 450 ft (137 m) downstream from Fishing Bridge, 0.2 mi (0.3 km) downstream from outlet of Yellowstone Lake, and at mile 594.8 (957.0 km).

DRAINAGE AREA.--1,006 mi² (2,606 km²).

PERIOD OF RECORD.--December 1922 to current year (prior to October 1926, gage heights only). Monthly discharge only for winter periods in water years 1927-30, 1932-33, 1935-38, 1940, 1942-46, published in WSP 1309; figures of daily discharge for these months published in WSP 646, 666, 686, 701, 731, 746, 786, 806, 826, 856, 896, 956, 976, 1006, 1036, and 1056, have been found to be unreliable and should not be used.

REVISED RECORDS.--WSP 1309: See PERIOD OF RECORD. WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 7,727.91 ft (2,355.467 m) National Geodetic Vertical Datum of 1929. Prior to Oct. 2, 1928, nonrecording gage at site 450 ft (137 m) upstream at datum 1.07 ft (0.326 m) higher.

REMARKS.--Records good except those for winter period, which are poor. No artificial regulation. Several observations of water temperature were made during the year and are available in files of Helena district office.

AVERAGE DISCHARGE.--53 years (1927-79), 1,326 ft³/s (37.55 m³/s), 17.90 in/yr (455 mm/yr), 960,700 acre-ft/yr (1.18 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,170 ft³/s (260 m³/s) June 28, 1974, gage height, 820 ft (2.499 m); minimum daily, 130 ft³/s (3.68 m³/s) Mar. 1-31, 1934, but may have been less during periods of ice effect; minimum gage height, 1.45 ft (0.442 m) Dec. 17, 1936.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,720 ft³/s (105 m³/s) June 30, gage height, 5.74 ft (1.750 m); maximum gage height, 5.88 ft (1.792 m) June 27 (owing to sieche); minimum daily discharge, 280 ft³/s (7.93 m³/s) Feb. 24-26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1230	822	605	370	390	290	540	650	2130	3710	2170	1320
2	1200	816	605	360	390	290	560	655	2160	3710	2130	1290
3	1180	810	605	350	380	290	570	660	2180	3690	2070	1260
4	1180	816	605	350	380	290	580	665	2220	3640	2030	1250
5	1150	780	595	360	370	290	600	670	2310	3600	1970	1220
6	1140	775	590	370	370	300	620	697	2430	3550	1930	1200
7	1130	753	580	380	370	300	640	709	2550	3500	1890	1180
8	1120	747	580	380	360	310	650	714	2640	3460	1860	1160
9	1100	747	570	390	360	310	660	720	2680	3410	1840	1150
10	1100	736	566	390	350	320	680	720	2710	3350	1810	1110
11	1100	736	557	400	350	320	700	725	2730	3310	1750	1080
12	1050	736	550	410	340	330	710	725	2810	3230	1720	1060
13	1030	725	550	420	340	340	720	725	2920	3170	1720	1040
14	1020	709	550	430	330	340	710	725	3080	3100	1740	1020
15	1010	703	550	430	300	350	710	725	3200	3040	1720	1010
16	998	697	540	430	300	360	720	747	3320	2980	1690	984
17	991	697	540	440	310	360	710	780	3380	2910	1660	970
18	984	692	540	440	310	360	700	822	3470	2850	1630	956
19	977	670	540	440	310	360	700	864	3580	2810	1610	935
20	977	670	540	440	310	370	700	914	3580	2740	1590	921
21	963	665	530	440	300	370	690	984	3580	2680	1560	907
22	949	665	530	430	290	380	680	1040	3580	2630	1570	894
23	942	660	520	430	290	390	680	1140	3580	2610	1530	882
24	921	645	510	420	280	400	680	1220	3600	2600	1510	864
25	900	630	500	420	280	410	680	1330	3630	2540	1490	852
26	900	625	480	420	280	420	670	1460	3630	2460	1460	858
27	882	620	470	410	290	440	650	1610	3670	2400	1440	852
28	870	615	450	410	300	450	655	1790	3670	2370	1420	834
29	870	605	420	400	---	470	645	1940	3690	2320	1390	822
30	852	605	390	400	---	480	650	2040	3710	2250	1370	804
31	834	---	380	400	---	500	---	2110	---	2220	1360	---
TOTAL	31550	21172	16538	12560	9230	11190	19860	31276	92420	92840	52650	30685
MEAN	1018	706	533	405	330	361	662	1009	3081	2995	1698	1023
MAX	1230	822	605	440	390	500	720	2110	3710	3710	2170	1320
MIN	834	605	380	350	280	290	540	650	2130	2220	1360	804
CFSM	1.01	.70	.53	.40	.33	.36	.66	1.00	3.06	2.98	1.69	1.02
IN.	1.17	.78	.61	.46	.34	.41	.73	1.16	3.42	3.43	1.95	1.13
AC-FT	62580	41990	32800	24910	18310	22200	39390	62040	183300	184100	104400	60860

CAL YR 1978 TOTAL 525088 MEAN 1439 MAX 5400 MIN 220 CFSM 1.43 IN 19.42 AC-FT 1042000
WTR YR 1979 TOTAL 421971 MEAN 1156 MAX 3710 MIN 280 CFSM 1.15 IN 15.60 AC-FT 837000

06191500 YELLOWSTONE RIVER AT CORWIN SPRINGS, MT

LOCATION.--Lat 45°06'43", long 110°47'37", in SE¼NW¼ sec.30, T.8 S., R.8 E., Park County, Hydrologic Unit 10070002, on left bank 20 ft (6 m) downstream from highway bridge at Corwin Springs, 1.3 mi (2.1 km) upstream from Mol Herron Creek, 7 mi (11 km) northwest of Gardiner, and at mile 530.5 (853.6 km).

DRAINAGE AREA.--2,623 mi² (6,794 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1889 to November 1893 (published as "at Horr"), September 1910 to current year. Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WSP 1309: 1912. WSP 1509: 1889-94, 1911, 1913, 1916-18, 1920-21, 1925, 1927. WSP 1559: Drainage area.

GAGE.--Water-stage and temperature recorders. Datum of gage is 5,079.09 ft (1,548.107 m) National Geodetic Vertical Datum of 1929. Aug. 12, 1889 to Nov. 4, 1893, nonrecording gages at site 2 mi (3 km) upstream at different datums. Sept. 2, 1910, to Apr. 19, 1935, nonrecording gages on bridge at present datum.

REMARKS.--Records good except those for winter periods, which are fair. Natural storage in Yellowstone Lake. Diversions for irrigation of about 960 acres (3.89 km²) of which 40 acres (162,000 m²) lies below station.

AVERAGE DISCHARGE.--73 years, 3,118 ft³/s (88.30 m³/s), 16.14 in/yr (410 mm/yr), 2,259,000 acre-ft/yr (2.79 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge observed, 32,000 ft³/s (906 m³/s) June 14, 15, 1918, gage height, 11.5 ft (3.51 m), from rating curve extended above 18,000 ft³/s (510 m³/s); minimum observed, 389 ft³/s (11.0 m³/s) Feb. 23, Mar. 5, 9, 1937, gage height, 0.05 ft (0.015 m).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 12,000 ft³/s (340 m³/s) and maximum(*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
May 28	0500	15,800	447	7.47	2.277	June 14	0400	*17,400	493	*7.85	2.393
June 6	0700	14,100	399	7.02	2.140						

Minimum discharge, 551 ft³/s (15.6 m³/s) Mar. 3, 4, gage height, 0.47 ft (0.143 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1950	1400	1210	780	710	645	1070	1640	6820	9810	3250	2000
2	1930	1410	1150	800	710	639	1040	1690	6490	8870	3150	1940
3	1890	1410	1090	800	700	576	1100	1940	6640	8410	3070	1890
4	1880	1410	1200	790	700	576	1120	2140	8900	7680	3010	1860
5	1830	1400	1160	760	700	626	1140	2380	11200	7550	2940	1830
6	1800	1310	1000	740	700	620	1160	2720	13400	7180	2860	1790
7	1780	1300	970	730	695	645	1260	2360	11300	6970	2800	1760
8	1760	1340	880	750	680	658	1180	2130	9110	6640	2770	1740
9	1740	1360	930	790	671	626	1250	1950	8020	6340	2820	1710
10	1720	1200	960	840	671	613	1240	1830	7880	6050	2730	1680
11	1710	1200	980	860	671	645	1220	1870	9200	5860	2650	1640
12	1690	1200	1000	880	665	658	1200	1880	11000	5650	2600	1620
13	1640	1200	1050	860	671	678	1200	2000	14100	5420	2740	1610
14	1620	1200	1050	900	671	685	1200	2310	15900	5270	3040	1580
15	1610	1200	1050	900	639	696	1220	2800	14000	5050	2920	1570
16	1600	1280	1100	870	613	731	1250	3780	11800	4920	2690	1540
17	1600	1200	1120	850	639	738	1300	4400	11500	4810	2560	1520
18	1600	1200	1050	830	633	745	1410	5200	11200	4650	2520	1500
19	1590	1150	1050	800	646	738	1410	5720	10900	4520	2510	1490
20	1580	1100	1000	780	646	745	1320	6150	10400	4400	2460	1460
21	1570	1100	980	740	633	772	1300	6740	10600	4320	2470	1450
22	1540	1150	960	720	646	800	1330	8210	10300	4260	2440	1440
23	1500	1150	950	720	639	807	1410	9110	10200	4420	2350	1430
24	1500	1200	920	720	626	864	1450	10200	10300	4160	2290	1400
25	1490	1200	910	700	613	945	1440	10500	11000	3930	2300	1380
26	1460	1200	960	700	607	975	1410	12000	11500	3840	2230	1400
27	1450	1150	880	700	607	1030	1410	13200	11200	3740	2140	1440
28	1450	1200	860	700	620	1050	1540	14800	10700	3650	2160	1410
29	1450	1160	800	700	---	1080	1670	11800	10700	3550	2100	1370
30	1420	1210	740	680	---	1110	1770	8810	10300	3400	2040	1360
31	1340	---	760	700	---	1110	---	7660	---	3330	2000	---
TOTAL	50690	37190	30660	24110	18422	23628	39020	170320	316560	168650	80610	47790
MEAN	1635	1240	989	778	658	769	1301	5494	10550	5447	2600	1593
MAX	1950	1410	1210	900	710	1110	1770	14800	15900	9810	3250	2000
MIN	1340	1100	740	680	607	576	1040	1830	6490	3330	2000	1360
CFSM	.62	.47	.38	.30	.25	.29	.50	2.10	4.02	2.08	.99	.61
IN.	.72	.53	.43	.34	.26	.34	.55	2.42	4.49	2.39	1.14	.68
AC-FT	100500	73770	60810	47820	36540	47260	77400	337800	627900	334900	159900	94790

CAL YR 1978 TOTAL 1285708 MEAN 3522 MAX 18700 MIN 633 CFSM 1.34 IN 18.23 AC-FT 2550000
WTR YR 1979 TOTAL 1008050 MEAN 2762 MAX 15900 MIN 576 CFSM 1.05 IN 14.30 AC-FT 1999000

06191500 YELLOWSTONE RIVER AT CORWIN SPRINGS, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1969-74, 1977 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: June 1977 to current year.

INSTRUMENTATION.--Temperature recorder since June 1977.

EXTREMES FOR PERIOD OF DAILY RECORD.--Maximum, 21.5°C July 22, 23, 1977; minimum, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--Maximum, 20.5°C Aug. 9, 10; minimum, 0.0°C on many days during November to March.

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	13.5	10.5	11.5	5.5	3.0	4.5	3.0	.5	2.0	.0	.0	.0
2	13.0	10.0	11.0	6.0	4.5	5.5	1.5	.0	.5	.0	.0	.0
3	10.5	7.5	9.5	6.5	5.0	6.0	.0	.0	.0	.0	.0	.0
4	12.0	8.5	10.0	7.5	6.5	7.0	.5	.0	.0	.0	.0	.0
5	12.0	8.0	9.5	7.0	5.5	6.5	.5	.0	.0	.0	.0	.0
6	12.0	7.5	9.5	5.5	4.0	4.5	.0	.0	.0	.0	.0	.0
7	12.0	8.5	10.0	5.0	3.0	4.0	.0	.0	.0	.0	.0	.0
8	12.5	9.5	10.5	5.0	4.0	4.5	.0	.0	.0	.0	.0	.0
9	12.5	9.0	10.5	5.5	2.5	4.5	.0	.0	.0	.0	.0	.0
10	12.0	9.5	10.5	2.5	.0	1.0	.0	.0	.0	.0	.0	.0
11	12.5	9.0	10.5	.0	.0	.0	.0	.0	.0	---	---	---
12	11.0	8.5	9.5	.0	.0	.0	.5	.0	.0	---	---	---
13	10.5	7.0	8.0	.5	.0	.0	.0	.0	.0	---	---	---
14	10.5	6.0	8.0	.5	.0	.0	.0	.0	.0	---	---	---
15	11.0	7.0	8.5	.0	.0	.0	.5	.0	.0	---	---	---
16	11.5	7.5	9.5	.5	.0	.0	.0	.0	.0	---	---	---
17	11.0	8.5	10.0	1.0	.0	.5	.0	.0	.0	---	---	---
18	12.0	9.0	10.0	1.5	.5	1.0	.5	.0	.5	---	---	---
19	11.5	7.5	9.5	.5	.0	.0	1.0	.0	.5	---	---	---
20	11.0	6.5	9.5	.0	.0	.0	1.0	.0	.5	---	---	---
21	11.0	8.5	9.0	1.5	.0	.5	1.0	.0	.5	---	---	---
22	10.5	7.0	8.5	3.0	1.5	2.5	1.5	.5	1.0	---	---	---
23	10.0	6.0	7.5	3.5	2.5	3.0	1.5	1.0	1.5	---	---	---
24	7.5	6.5	7.0	3.0	2.0	2.5	2.0	1.0	1.5	---	---	---
25	7.5	5.5	6.5	2.5	1.0	1.5	1.5	1.0	1.0	.0	.0	.0
26	7.0	4.5	5.5	2.0	1.0	1.5	1.0	.0	.5	.5	.0	.0
27	6.5	5.0	5.5	2.0	1.0	1.5	.5	.0	.5	.0	.0	.0
28	7.5	5.5	6.5	2.0	1.0	1.5	.0	.0	.0	.0	.0	.0
29	7.0	6.0	6.5	2.0	1.0	1.5	.0	.0	.0	.0	.0	.0
30	6.0	4.0	5.5	3.0	1.5	2.0	.0	.0	.0	.0	.0	.0
31	4.0	2.5	3.5	---	---	---	.0	.0	.0	.0	.0	.0
MONTH	13.5	2.5	8.5	7.5	.0	2.5	3.0	.0	.5	.5	.0	.0

06191500 YELLOWSTONE RIVER AT CORWIN SPRINGS, MT--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	.0	.0	.0	3.5	1.5	2.5	---	---	---	10.5	8.0	9.0
2	.0	.0	.0	4.0	.5	2.5	---	---	---	10.0	7.0	8.5
3	.0	.0	.0	3.0	.5	1.5	---	---	---	11.0	7.0	9.0
4	.0	.0	.0	2.0	.0	1.0	---	---	---	10.0	8.0	8.5
5	.0	.0	.0	4.0	1.0	2.5	---	---	---	9.5	8.0	8.5
6	.0	.0	.0	6.0	3.0	4.5	---	---	---	8.5	5.5	7.5
7	1.0	.0	.0	7.5	5.0	6.0	---	---	---	7.5	5.0	6.5
8	1.0	.0	.5	7.5	5.0	6.0	---	---	---	7.0	5.5	6.0
9	2.5	1.0	1.5	6.0	3.0	4.5	---	---	---	6.5	5.0	5.5
10	4.0	2.0	3.0	4.5	1.5	3.5	---	---	---	6.5	4.5	6.5
11	5.0	3.5	4.0	5.5	1.5	3.5	---	---	---	10.0	6.5	8.0
12	5.0	4.0	4.5	6.0	2.5	4.5	---	---	---	10.0	7.5	8.5
13	5.5	4.0	4.5	6.5	3.0	5.0	---	---	---	10.5	7.5	9.0
14	5.5	.5	4.0	6.5	3.0	5.0	---	---	---	11.0	8.0	9.5
15	1.5	.0	.5	6.5	3.0	5.0	---	---	---	11.0	8.0	9.5
16	3.0	.0	1.5	6.5	4.0	5.0	---	---	---	9.5	7.5	8.5
17	4.5	2.0	3.0	5.5	4.5	5.0	---	---	---	8.5	7.5	6.0
18	4.0	2.5	3.5	7.0	5.0	6.0	---	---	---	8.5	8.0	8.5
19	5.5	3.5	4.5	7.0	5.0	5.5	---	---	---	8.5	7.5	8.0
20	5.5	3.5	4.0	6.5	4.5	5.0	---	---	---	8.0	7.0	7.5
21	4.5	2.5	3.5	7.0	3.5	5.0	---	---	---	9.0	7.5	8.0
22	4.0	1.0	3.0	7.0	4.0	5.5	---	---	---	9.0	6.5	7.5
23	3.0	1.0	2.0	7.0	3.5	5.0	---	---	---	9.0	6.0	7.5
24	4.0	1.0	2.5	7.5	3.5	5.5	---	---	---	9.0	6.0	7.0
25	5.0	2.5	3.5	6.0	3.5	4.5	9.5	---	---	9.5	6.0	7.5
26	5.5	2.5	4.0	5.5	3.5	5.0	10.0	7.0	8.5	9.5	6.0	7.5
27	6.0	3.5	4.5	---	4.5	---	11.0	6.5	9.0	8.5	6.0	7.0
28	5.0	3.5	4.0	---	---	---	11.5	8.0	10.0	8.0	5.0	6.0
29	---	---	---	---	---	---	11.5	8.5	9.5	5.5	4.0	4.5
30	---	---	---	---	---	---	10.5	8.0	9.0	6.0	4.0	5.0
31	---	---	---	---	---	---	---	---	---	6.5	5.0	6.0
MONTH	6.0	.0	2.5	7.5	.0	4.5	11.5	6.5	9.0	11.0	4.0	7.5

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	8.0	6.0	7.0				19.5	---	---	18.0	14.5	16.0
2	8.5	7.5	8.0				20.0	17.0	18.5	18.5	15.0	16.5
3	10.0	9.0	9.0				20.0	17.0	18.5	19.0	15.5	17.0
4	10.0	8.0	9.0				19.5	17.0	18.0	19.5	15.5	17.0
5	10.0	7.0	8.5				20.0	17.5	18.5	18.5	15.5	17.0
6	9.5	6.5	7.5				19.5	17.5	18.5	18.5	15.0	17.0
7	6.5	4.5	5.0				18.5	17.0	18.0	19.0	15.5	17.0
8	7.0	5.5	6.0				19.0	16.0	17.5	19.0	15.5	17.0
9	8.5	6.0	7.0				20.5	17.5	19.0	19.0	16.0	17.0
10	9.5	8.0	8.5				20.5	18.0	19.0	17.5	14.5	16.0
11	10.0	8.5	9.0				19.0	17.0	18.0	15.5	13.0	14.5
12	11.0	7.5	9.0				18.5	17.0	17.5	15.0	12.0	13.5
13	11.0	7.0	9.0				17.0	15.5	16.5	15.0	12.0	13.5
14	10.5	7.0	8.5				17.5	15.0	16.0	15.0	11.5	13.0
15	9.5	6.0	7.5				18.5	15.5	17.0	15.5	11.5	13.5
16	10.0	7.0	8.5				18.5	16.5	17.0	16.5	12.5	14.5
17	10.0	8.0	9.0				18.5	16.0	17.5	17.0	13.0	15.0
18	9.5	7.5	8.5				18.5	16.0	17.0	16.5	13.5	15.0
19	7.5	5.5	6.0				18.0	16.0	17.0	17.0	14.0	15.0
20	9.5	7.0	7.5				18.5	16.0	17.0	16.5	13.5	15.0
21	9.5	7.5	8.5				17.5	15.0	16.5	16.0	13.0	14.5
22	10.0	8.0	8.5				18.5	15.5	17.0	14.5	13.0	14.0
23	11.0	8.5	9.5				18.0	16.0	17.0	14.5	12.0	13.0
24	---	---	---				18.0	16.0	17.0	14.5	11.5	13.0
25	---	---	---				18.0	15.5	16.5	13.5	12.0	13.0
26	---	---	---				18.0	15.5	16.5	13.5	12.5	13.0
27	---	---	---				17.5	15.5	16.0	14.0	11.0	12.5
28	---	---	---				17.5	14.5	16.0	13.5	11.0	12.0
29	---	---	---				19.5	15.0	17.0	14.0	11.0	12.5
30	---	---	---				20.0	16.5	18.0	13.5	11.5	12.5
31	---	---	---				17.0	16.0	16.5	---	---	---
MONTH	11.0	4.5	6.0				20.5	14.5	17.5	19.5	11.0	14.5
YEAR	20.5	.0	7.0									

06191800 BIG CREEK NEAR EMIGRANT, MT

LOCATION.--Lat 45°18'23", long 110°52'37", in NE¼NE¼NE¼ sec.20, T.6 S., R.7 E., Park County, Hydrologic Unit 10070002, on left bank 1.0 mi (1.6 km) downstream from Hyalite Creek, 2.7 mi (4.3 km) upstream from mouth, and 8.5 mi (13.7 km) southwest of Emigrant.

DRAINAGE AREA.--60.9 mi² (157.7 km²).

PERIOD OF RECORD.--September 1973 to September 1979 (discontinued).

GAGE.--Water-stage recorder. Altitude of gage is 5,270 ft (1,606 m), from topographic map.

REMARKS.--Records good except those for winter period, which are fair. Diversions for irrigation of about 150 acres (607,000 m²) above station. Several observations of water temperature were made during the year and are available in files of Helena district office.

AVERAGE DISCHARGE.--6 years, 66.1 ft³/s (1.872 m³/s), 14.74 in/yr (374 mm/yr), 47,900 acre-ft/yr (59.1 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 818 ft³/s (23.2 m³/s) June 17, 1974, gage height, 5.51 ft (1.679 m); minimum daily, 16 ft³/s (0.45 m³/s) Mar. 3, 1976.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 400 ft³/s (11.3 m³/s) and maximums (*):

Date	Time	Discharge		Gage height		Date	Time	Discharge		Gage height	
		(ft³/s)	(m³/s)	(ft)	(m)			(ft³/s)	(m³/s)	(ft)	(m)
Nov. 21	1600	ice		*5.57	1.698	June 13	2145	409	11.6	4.76	1.451
May 27	2130	*413	11.7	4.77	1.454						

Minimum daily discharge, 18 ft³/s (0.51 m³/s) Dec. 29.

DISCHARGE, STREAM (CUBIC FEET PER SECOND), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	36	30	25	20	19	20	22	66	161	144	39	30
2	35	31	24	21	19	20	23	61	148	128	38	29
3	33	30	24	22	20	20	22	55	151	115	37	28
4	33	30	24	21	20	20	22	61	191	105	35	28
5	32	28	23	20	20	20	22	70	249	98	35	28
6	31	27	22	19	20	21	24	77	294	89	34	28
7	31	28	21	19	20	22	26	66	249	83	34	27
8	30	29	20	20	20	21	27	57	202	78	36	27
9	30	30	21	21	20	21	28	49	176	78	35	26
10	32	29	22	22	20	21	27	44	166	70	33	26
11	31	28	23	23	20	22	26	43	183	66	32	27
12	31	27	23	23	20	22	25	41	230	63	33	27
13	30	27	23	22	20	22	25	44	308	64	44	27
14	31	26	22	22	19	23	25	55	301	58	43	27
15	30	25	22	23	19	24	27	72	236	55	36	26
16	30	25	22	23	19	24	29	107	202	54	34	25
17	31	25	23	22	19	24	41	128	188	51	34	25
18	32	24	23	22	20	23	49	130	181	47	35	25
19	30	23	22	22	20	22	44	132	219	45	36	25
20	30	23	22	21	20	22	37	137	225	44	39	25
21	30	24	22	21	20	22	35	153	236	43	36	25
22	29	24	22	20	20	22	37	183	239	45	36	24
23	29	25	22	20	19	22	38	199	225	55	33	24
24	29	25	22	20	19	23	37	219	210	47	34	24
25	28	25	22	19	19	23	35	242	210	49	35	24
26	29	24	24	19	19	23	33	274	207	49	35	25
27	29	25	21	19	19	23	35	329	194	46	38	25
28	29	25	19	19	19	23	50	347	183	45	36	24
29	29	25	18	19	---	23	57	267	170	45	32	24
30	26	25	19	19	---	23	63	213	161	43	30	23
31	26	---	19	19	---	22	---	183	---	40	30	---
TOTAL	942	792	681	642	546	683	991	4104	6295	2042	1097	778
MEAN	30.4	26.4	22.0	20.7	19.6	22.0	33.0	132	210	65.9	35.4	25.9
MAX	36	31	25	23	20	24	63	347	308	144	44	30
MIN	26	23	18	19	19	20	22	41	148	40	30	23
CFSM	.50	.43	.36	.34	.32	.36	.54	2.17	3.45	1.08	.58	.43
IN.	.58	.48	.42	.39	.33	.42	.61	2.51	3.85	1.25	.67	.48
AC-FT	1870	1570	1350	1270	1090	1350	1970	8140	12490	4050	2180	1540

CAL YR 1978 TOTAL 22347 MEAN 61.2 MAX 358 MIN 17 CFSM 1.01 IN 13.65 AC-FT 44330
WTR YR 1979 TOTAL 19595 MEAN 53.7 MAX 347 MIN 18 CFSM .88 IN 11.97 AC-FT 38870

06192500 YELLOWSTONE RIVER NEAR LIVINGSTON, MT

LOCATION.--Lat 45°35'50", long 110°33'55", in NE¼NW¼NW¼ sec. 12, T.3 S., R.9 E., Park County, Hydrologic Unit 10070002, on right bank 50 ft (15 m) downstream from bridge on former U.S. Highway 89, 2 mi (3 km) downstream from Suce Creek, 4 mi (6 km) south of Livingston, and at mile 481.3 (774.4 km).

DRAINAGE AREA.--3,551 mi² (9,197 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1897 to December 1905, August 1928 to September 1932, October 1937 to current year. Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WSP 1309: 1899. WSP 1509: 1902. WSP 1629: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 4,542.49 ft (1,384.551 m) National Geodetic Vertical Datum of 1929. May 2, 1897, to Dec. 31, 1905, nonrecording gage on highway bridge at different datum. Aug. 23, 1928, to Sept. 30, 1932, and Mar. 14, 1938, to Feb. 3, 1951, nonrecording gage on highway bridge at present datum.

REMARKS.--Water-discharge records good. Diversions for irrigation of about 24,200 acres (97.9 km²) of which about 2,000 acres (8.10 km²) is below station.

AVERAGE DISCHARGE.--54 years, 3,773 ft³/s (106.9 m³/s), 2,734,000 acre-ft/yr (3.37 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge observed, 36,300 ft³/s (1,030 m³/s) June 17, 1974, gage height, 9.21 ft (2.807 m); maximum gage height, 9.34 ft (2.847 m) June 20, 1943; minimum daily discharge, 590 ft³/s (16.7 m³/s) Jan. 22, 1940.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 13,500 ft³/s (382 m³/s) and maximums (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Jan. 1	----	ice jam		*7.22	2.201	June 6	1500	16,000	453	6.31	1.923
May 28	1200	18,900	535	6.84	2.085	June 14	1045	*20,100	569	7.05	2.149

Minimum discharge, 865 ft³/s (24.5 m³/s) Mar. 4, gage height 0.80 ft (0.244 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2730	2030	1790	1350	1290	1130	1480	2370	7830	11900	3710	2610
2	2700	2070	1740	1400	1200	1120	1440	2420	7160	10600	3610	2560
3	2660	2070	1740	1400	1140	1070	1440	2420	7190	9890	3530	2500
4	2630	2060	1790	1400	1160	977	1470	2580	9040	9110	3450	2470
5	2600	2060	1670	1400	1140	1050	1500	2830	11600	8610	3370	2440
6	2560	2020	1480	1350	1140	1120	1540	3200	14600	8100	3290	2400
7	2530	1960	1400	1300	1160	1220	1610	3180	13900	7830	3230	2370
8	2520	1990	1320	1300	1130	1260	1630	2820	10900	7440	3200	2330
9	2480	2060	1670	1300	1120	1180	1630	2600	9150	7100	3200	2300
10	2470	2070	1700	1350	1140	1080	1650	2440	8510	6760	3160	2280
11	2480	1910	1720	1400	1160	1090	1650	2310	9480	6490	3090	2180
12	2450	2000	1740	1450	1190	1130	1610	2330	11200	6410	3050	2150
13	2400	2120	1670	1450	1260	1140	1590	2360	14900	6060	3120	2130
14	2360	2070	1610	1400	1280	1140	1600	2560	18300	5790	3430	2100
15	2340	2030	1660	1450	1200	1140	1600	2960	17000	5570	3430	2070
16	2340	2020	1700	1450	1270	1160	1660	3710	14200	5490	3220	2050
17	2330	2060	1570	1370	1140	1200	1700	4550	13200	5280	3070	2020
18	2330	2050	1630	1310	1140	1200	1840	5280	12800	5080	3010	2000
19	2310	2030	1620	1310	1150	1190	1910	5900	13200	4930	3010	1970
20	2300	2000	1550	1300	1160	1160	1830	6410	12400	4760	2980	1960
21	2280	1880	1600	1290	1150	1170	1760	6880	12700	4660	2980	1930
22	2270	1880	1530	1270	1140	1200	1760	8100	12500	4590	2960	1920
23	2220	1920	1570	1210	1160	1210	1810	9480	12500	4710	2920	1910
24	2190	1870	1570	1180	1070	1230	1910	10800	12400	4590	2850	1690
25	2190	1830	1570	1190	1100	1290	1920	11400	12900	4430	2830	1870
26	2150	1870	1530	1220	1080	1340	1880	13200	13400	4340	2830	1850
27	2150	1700	1490	1170	1110	1380	1840	14900	13400	4250	2770	1880
28	2130	1790	1450	1150	1120	1430	1910	17300	12900	4110	2730	1880
29	2130	1740	1400	1120	---	1460	2100	15400	12500	4030	2710	1850
30	2120	1800	1350	1120	---	1470	2250	11300	12200	3900	2650	1830
31	2050	---	1300	1150	---	1480	---	9150	---	3810	2600	---
TOTAL	73400	59020	49130	40510	32500	37417	51520	193140	363960	190620	95990	63700
MEAN	2368	1967	1585	1307	1161	1207	1717	6230	12130	6149	3096	2123
MAX	2730	2120	1790	1450	1290	1480	2250	17300	18300	11900	3710	2610
MIN	2050	1740	1300	1120	1070	977	1440	2310	7160	3810	2600	1830
AC-FT	145600	117100	97450	80350	64460	74220	102200	383100	721900	378100	190400	126300

CAL YR 1978 TOTAL 1689860 MEAN 4630 MAX 23900 MIN 878 AC-FT 3352000
WTR YR 1979 TOTAL 1250907 MEAN 3427 MAX 18300 MIN 977 AC-FT 2481000

06192500 YELLOWSTONE RIVER NEAR LIVINGSTON, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1970 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1969 to current year.
WATER TEMPERATURES: October 1969 to current year.

INSTRUMENTATION.--Temperature recorder since July 25, 1977.

REMARKS.--Once-daily temperature published for missing record.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 398 micromhos Apr. 3, 1970; minimum daily, 73 micromhos June 14, 1979.
WATER TEMPERATURES: Maximum daily, 23.0°C July 9, 1976; minimum daily, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 359 micromhos Feb. 2; minimum daily, 73 micromhos June 14.
WATER TEMPERATURES: Maximum, 20.5°C July 18, 23, 31, Aug. 2, 6; minimum daily, 0.0°C on several days during January.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)
OCT										
23...	1630	2210	--	268	8.4	--	9.0	--	--	--
NOV										
28...	1120	1760	--	278	7.8	--	1.5	--	--	--
DEC										
27...	0955	1420	--	289	8.9	--	--	--	--	--
JAN										
25...	1700	1200	--	331	8.1	--	.5	--	--	--
FEB										
27...	1200	1110	--	335	8.1	--	3.0	--	--	--
MAR										
07...	0830	1160	2	343	8.2	7.0	2.5	4.3	11.2	97
28...	1015	1480	2	305	7.9	-5.0	3.0	3.3	11.9	111
APR										
26...	1130	1990	51	260	8.3	7.0	8.5	4.9	10.4	105
MAY										
30...	1500	10800	13	110	7.5	12.0	8.0	6.7	9.2	91
JUN										
27...	1130	13300	1	107	7.9	22.5	13.5	10	8.8	99
AUG										
01...	1100	3710	1	190	8.2	24.0	18.0	2.0	8.7	107
SEP										
06...	1300	2400	0	240	8.6	24.0	15.5	1.4	10.2	120

06192500 YELLOWSTONE RIVER NEAR LIVINGSTON, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)
OCT										
23...	--	--	79	1	20	7.0	18	.9	3.9	80
NOV										
28...	--	--	85	3	22	7.4	19	.9	4.6	82
DEC										
27...	--	--	--	--	--	--	--	--	--	82
JAN										
25...	--	--	110	16	28	9.0	25	1.1	5.3	91
FEB										
27...	--	--	110	17	29	9.5	24	1.0	5.4	95
MAR										
07...	K36	390	110	11	28	8.5	25	1.1	5.6	94
28...	K5	K10	97	12	26	7.7	22	1.0	4.9	85
APR										
26...	50	21	80	11	21	6.8	18	.9	4.4	69
MAY										
30...	K15	40	64	33	20	3.4	5.8	.3	1.8	31
JUN										
27...	50	21	32	4	9.4	2.0	6.2	.5	1.8	28
AUG										
01...	36	30	60	4	15	5.5	14	.8	3.2	56
SEP										
06...	4	31	80	8	21	6.7	17	.8	3.9	72

DATE	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)
OCT										
23...	30	9.0	.6	21	--	158	.21	943	--	.06
NOV										
28...	34	13	.7	24	--	175	.24	832	--	.24
DEC										
27...	37	11	.6	26	--	--	--	--	--	.53
JAN										
25...	47	13	.7	30	--	214	.29	693	--	.36
FEB										
27...	47	17	.6	29	--	220	.30	659	--	.37
MAR										
07...	46	18	.7	30	202	220	.27	633	.35	--
28...	39	11	.6	26	189	189	.26	755	.22	--
APR										
26...	33	8.6	.7	22	155	156	.21	833	.08	--
MAY										
30...	11	3.7	.3	15	83	80	.11	2420	.06	--
JUN										
27...	12	2.9	.3	13	68	64	.09	2440	.04	--
AUG										
01...	23	6.5	.6	20	117	121	.16	1170	.02	--
SEP										
06...	27	6.8	.7	20	144	146	E.20	933	.02	--

06192500 YELLOWSTONE RIVER NEAR LIVINGSTON, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, KJEL-DAHL, TOTAL (MG/L AS N) (00625)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C) (00689)
OCT									
23...	--	--	--	--	--	.01	--	--	--
NOV									
28...	--	--	--	--	--	.01	--	--	--
DEC									
27...	--	--	--	--	--	.00	--	--	--
JAN									
25...	--	--	--	--	--	.03	--	--	--
FEB									
27...	--	--	--	--	--	.04	--	--	--
MAR									
07...	.02	.42	.44	.23	.04	.04	3.7	--	--
26...	.02	.09	.11	.08	.02	.01	1.9	--	--
APR									
26...	.02	.21	.23	.25	.02	.02	--	3.2	2.3
MAY									
30...	.02	.25	.27	.55	.05	.03	4.5	--	--
JUN									
27...	.01	.05	.06	.00	.07	.01	3.8	--	--
AUG									
01...	.00	.40	.40	.32	.00	.01	--	2.2	.1
SEP									
06...	.02	.58	.60	.10	.02	.02	2.0	--	--

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)
APR									
26...	1130	23	18	0	0	0	0	0	0
AUG									
01...	1100	16	18	0	40	0	<1	10	20

DATE	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO) (01037)	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)
APR									
26...	0	0	8	1	390	40	--	0	30
AUG									
01...	0	<3	7	1	180	20	5	0	10

DATE	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG) (01077)	SILVER, DIS-SOLVED (UG/L AS AG) (01075)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
APR									
26...	10	.5	.0	0	0	0	0	30	10
AUG									
01...	3	.0	.0	0	0	0	0	20	3

06192500 YELLOWSTONE RIVER NEAR LIVINGSTON, MT--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	225	135	263	---	343	333	277	235	122	112	185	222
2	228	228	265	---	359	332	278	237	124	110	186	225
3	233	209	275	---	335	332	274	237	124	115	189	228
4	226	212	263	---	330	342	282	236	107	123	193	229
5	230	171	272	---	348	347	278	228	69	125	197	230
6	232	206	272	---	336	342	276	220	78	127	204	231
7	233	197	293	---	324	324	272	197	82	137	210	238
8	240	218	307	---	332	323	273	211	100	132	208	235
9	233	---	312	---	323	332	273	222	116	135	200	243
10	234	253	303	---	326	337	273	227	112	139	201	240
11	236	252	286	312	337	338	268	235	103	141	202	239
12	237	254	277	308	322	343	271	278	91	139	203	240
13	238	253	278	305	317	342	271	234	75	142	201	241
14	240	254	291	---	313	347	272	228	73	147	199	243
15	241	267	285	308	329	338	268	213	88	153	197	246
16	240	252	288	306	342	337	266	193	85	152	200	248
17	241	252	288	308	332	332	264	168	89	155	199	250
18	247	250	287	307	324	329	259	155	92	158	200	251
19	241	250	285	313	333	329	252	147	97	160	202	252
20	244	252	281	314	339	332	254	137	105	163	202	254
21	244	253	284	314	330	327	256	133	100	164	204	256
22	243	253	288	317	334	329	257	121	101	165	205	255
23	245	252	277	317	344	325	256	111	99	165	206	255
24	247	264	261	322	350	316	252	105	100	166	207	256
25	246	251	274	326	338	313	251	106	95	170	211	257
26	248	257	291	328	336	298	251	101	94	171	212	259
27	251	261	288	324	334	292	252	117	93	172	215	261
28	252	263	307	327	343	287	257	88	96	173	216	260
29	250	263	306	332	---	290	243	102	97	176	217	260
30	251	261	326	334	---	278	235	115	98	177	218	260
31	251	---	298	337	---	275	---	126	---	180	222	---
MEAN	240	239	287	318	334	324	264	175	98	150	204	245

WTR YR 1979 MEAN 237 MAX 359 MIN 73

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

1	---	7.5	2.0	.0	1.0	2.0	6.0	---
2	---	8.5	1.0	.0	2.5	5.5	7.5	---
3	12.5	8.5	1.0	.0	1.0	5.5	7.5	---
4	12.0	6.5	2.0	.0	3.0	4.5	5.5	---
5	11.5	6.0	.5	.0	2.0	4.0	10.0	---
6	12.0	7.0	.5	.0	3.0	3.5	10.5	---
7	13.0	7.5	.5	.0	3.0	5.0	10.0	---
8	13.0	6.0	.5	.0	3.0	---	6.5	7.5
9	13.0	---	.5	.0	3.5	---	9.0	9.0
10	12.0	1.5	1.5	.0	4.0	---	7.0	11.5
11	12.5	1.0	2.0	1.0	4.0	---	8.0	12.0
12	10.5	.5	2.5	.5	4.5	---	8.0	7.0
13	10.5	.5	1.0	.5	4.5	---	7.0	13.0
14	11.0	2.0	1.0	.5	1.0	---	10.0	13.5
15	10.0	1.5	2.0	1.0	.5	---	10.5	15.0
16	11.5	2.0	1.0	1.5	2.0	---	11.5	13.5
17	11.5	3.0	2.5	2.0	2.5	---	13.5	14.0
18	13.0	3.0	2.5	2.0	2.5	---	12.5	14.0
19	13.0	2.0	2.0	2.0	3.0	---	10.0	14.5
20	12.5	1.5	2.0	2.0	4.0	---	9.5	13.5
21	11.5	1.0	1.5	2.0	4.5	---	12.0	15.0
22	11.5	1.0	1.5	2.5	2.0	---	10.0	15.0
23	10.0	3.0	---	2.0	1.5	---	8.5	15.5
24	8.0	2.0	---	2.0	5.5	---	8.5	12.0
25	8.0	1.5	---	1.0	4.0	---	10.0	14.0
26	10.5	3.0	---	2.0	5.5	---	12.0	13.0
27	8.5	2.0	.5	2.0	4.5	4.0	---	11.0
28	9.0	2.5	1.0	2.0	4.0	5.5	---	7.0
29	7.0	3.0	.0	1.5	---	6.0	---	6.0
30	6.5	4.5	.5	1.5	---	7.0	---	---
31	7.0	---	.5	2.0	---	7.5	---	---
MEAN	11.0	3.5	1.0	1.0	3.0	5.0	9.5	12.0

WTR YR 1979 MEAN 5.5 MAX 15.5 MIN .0

06192500 YELLOWSTONE RIVER NEAR LIVINGSTON, MT--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	12.5	10.5	11.5									
2	12.5	10.0	11.0									
3	---	---	---									
4	---	---	---									
5	---	---	---									
6	---	---	---									
7	---	---	---									
8	---	---	---									
9	---	---	---									
10	---	---	---									
11	---	---	---									
12	---	---	---									
13	---	---	---									
14	---	---	---									
15	---	---	---									
16	---	---	---									
17	---	---	---									
18	---	---	---									
19	---	---	---									
20	---	---	---									
21	---	---	---									
22	---	---	---									
23	---	---	---									
24	---	---	---									
25	---	---	---									
26	---	---	---									
27	---	---	---									
28	---	---	---									
29	---	---	---									
30	---	---	---									
31	---	---	---									
MONTH	12.5	10.0	11.5									
		FEBRUARY			MARCH			APRIL			MAY	
1				---	---	---	---	---	---	11.5	9.0	10.5
2				---	---	---	---	---	---	11.0	7.5	9.5
3				---	---	---	---	---	---	13.0	7.5	10.0
4				---	---	---	---	---	---	11.5	9.5	10.5
5				---	---	---	---	---	---	11.0	9.5	10.0
6				---	---	---	---	---	---	10.0	8.5	9.0
7				6.5	---	---	---	---	---	---	7.0	---
8				5.0	2.0	3.0	---	---	---	---	---	---
9				6.5	2.0	4.0	---	---	---	---	---	---
10				7.0	3.0	5.0	---	---	---	---	---	---
11				7.5	3.5	5.5	---	---	---	---	---	---
12				7.5	3.5	5.5	---	---	---	---	---	---
13				9.0	4.0	5.5	---	---	---	---	---	---
14				9.5	4.0	6.5	---	---	---	---	---	---
15				8.5	4.5	6.5	---	---	---	---	---	---
16				8.5	5.0	7.0	---	---	---	---	---	---
17				7.0	5.5	6.0	---	---	---	---	---	---
18				8.0	5.0	6.0	---	---	---	---	---	---
19				7.5	4.5	5.5	---	---	---	---	---	---
20				7.0	4.0	5.5	---	---	---	---	---	---
21				8.0	4.0	6.0	---	---	---	---	---	---
22				9.0	5.0	6.5	---	---	---	---	---	---
23				7.0	4.5	6.0	---	---	---	---	---	---
24				9.5	5.0	7.0	---	---	---	---	---	---
25				8.5	4.5	6.0	---	---	---	---	---	---
26				5.0	3.0	4.0	11.0	---	---	---	---	---
27				4.5	3.5	4.0	13.5	7.5	10.5	---	---	---
28				---	---	---	14.0	9.5	12.0	---	---	---
29				---	---	---	13.5	9.5	11.5	---	---	---
30				---	---	---	13.0	9.5	11.0	8.5	---	---
31				---	---	---	---	---	---	9.0	6.0	7.5
MONTH				9.5	2.0	5.5	14.0	7.5	11.5	13.0	6.0	9.5

06192500 YELLOWSTONE RIVER NEAR LIVINGSTON, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	11.0	6.5	8.5	16.0	12.5	14.5	20.0	16.0	18.5	17.5	13.0	15.0
2	12.0	7.5	9.5	16.5	11.5	14.0	20.5	16.5	18.5	17.5	14.0	16.0
3	13.5	8.5	11.0	17.0	12.5	15.0	20.0	16.0	18.0	18.0	14.0	16.0
4	13.5	9.5	11.5	17.5	13.0	15.5	20.0	16.5	18.0	16.5	14.5	15.5
5	12.5	9.0	10.5	18.0	14.0	16.0	20.0	17.0	18.5	17.5	13.0	15.0
6	11.0	8.0	9.5	17.0	14.0	15.5	20.5	16.5	18.5	18.0	13.5	16.0
7	7.5	6.0	7.0	18.0	14.0	15.5	18.5	16.0	17.5	18.0	14.0	16.0
8	9.5	5.0	7.0	18.0	14.0	16.0	17.5	15.0	16.5	17.5	14.0	16.0
9	11.0	6.5	8.5	18.5	14.5	16.5	19.5	15.0	17.5	18.0	14.0	16.0
10	12.0	7.5	10.0	18.5	14.5	16.5	20.0	16.0	18.0	16.0	13.5	14.5
11	12.5	8.5	10.5	18.0	14.5	16.5	19.0	16.0	17.5	14.5	12.0	13.0
12	13.0	8.5	11.0	18.5	14.5	16.5	17.5	16.0	17.0	14.5	11.0	12.5
13	12.5	9.0	11.0	19.0	15.0	17.0	16.0	15.0	15.5	14.5	11.0	12.5
14	11.0	8.0	9.5	19.0	15.5	17.0	17.5	14.5	16.0	14.5	10.5	12.5
15	10.5	8.0	9.5	18.5	14.5	16.5	18.5	15.0	17.0	15.0	10.5	12.5
16	12.5	8.0	10.0	19.0	15.0	17.0	17.5	15.5	16.5	15.5	11.0	13.5
17	11.5	8.5	10.0	20.0	16.0	18.0	19.0	14.5	16.5	15.5	12.0	14.0
18	11.0	8.5	10.0	20.5	16.5	18.5	17.0	15.0	16.5	16.0	12.0	14.0
19	9.0	7.0	8.0	20.0	16.5	18.5	18.5	15.0	16.5	16.0	12.5	14.0
20	11.5	7.0	8.5	19.0	16.5	18.0	18.0	15.0	16.5	15.5	12.0	13.5
21	11.0	8.5	10.0	20.0	16.5	18.5	18.0	14.5	16.5	15.0	11.5	13.5
22	11.5	8.0	10.0	19.5	17.5	18.0	18.5	14.5	16.5	15.5	11.5	13.5
23	13.5	9.0	11.0	20.5	16.5	18.5	18.0	14.5	16.5	15.5	11.5	13.5
24	15.0	9.5	12.0	20.0	16.5	18.5	17.5	15.0	16.0	15.0	11.0	13.5
25	15.5	11.5	13.5	19.5	16.5	18.0	18.0	15.0	16.5	14.5	11.0	13.0
26	15.0	12.0	13.5	19.5	16.5	18.0	17.0	15.0	16.0	13.5	11.5	12.5
27	15.5	12.0	14.0	19.0	16.0	17.5	17.5	14.5	16.0	14.5	11.0	12.5
28	15.5	11.5	13.5	18.0	15.5	17.0	18.0	14.0	16.0	14.5	10.5	12.5
29	16.5	12.0	14.5	19.0	15.0	17.5	18.5	14.5	16.5	14.5	10.5	12.5
30	16.5	13.0	14.5	20.0	16.0	18.0	19.0	15.5	17.0	13.5	11.5	12.5
31	---	---	---	20.5	16.0	18.0	17.0	14.0	15.0	---	---	---
MONTH	16.5	5.0	10.5	20.5	11.5	17.0	20.5	14.0	17.0	18.0	10.5	14.0
YEAR	20.5	2.0	13.0									

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPERATURE (DEG C) (00010)	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
MAR						
07...	0830	2.5	1160	28	88	86
28...	1015	3.0	1480	17	68	86
APR						
26...	1130	8.5	1990	30	161	81
MAY						
30...	1500	6.0	10800	105	3060	47
JUN						
27...	1130	13.5	13300	82	2940	41
AUG						
01...	1100	18.0	3710	6	60	83
SEP						
06...	1300	15.5	2400	3	19	92

06192500 YELLOWSTONE RIVER NEAR LIVINGSTON, MT--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

PHYTOPLANKTON

DATE	MAR 7,79		MAR 28,79		MAY 30,79		JUN 27,79		AUG 1,79		SEP 6,79	
TIME	0830		1015		1500		1130		1100		1500	
TOTAL CELLS/ML	1700		4500		1100		2100		220		1100	
DIVERSITY: DIVISION	0.9		0.0		0.6		0.5		0.8		0.4	
.CLASS	0.9		0.0		0.6		0.5		0.8		0.4	
..ORDER	1.1		0.6		1.5		1.4		1.3		0.8	
...FAMILY	2.9		2.6		1.5		1.5		2.7		2.7	
....GENUS	3.0		3.0		1.5		1.5		2.8		3.0	
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)												
.CHLOROPHYCEAE												
..CHLOROCOCCALES												
...OOCYSTACEAE												
....ANKISTRODESMUS	--	-	--	-	13	1	--	-	--	-	9	1
....CHLORELLA	--	-	--	-	--	-	--	-	--	-	90	6
..TETRASPORALES												
...COCCOMYXACEAE												
....ELAKATOTHRIX	--	-	--	-	--	-	26	1	--	-	--	-
CHRYSOPHYTA												
.BACILLARIOPHYCEAE												
..CENTRALES												
...COSCINODISCACEAE												
....CYCLOTELLA	14	1	370	8	--	-	--	-	--	-	90	8
....MELOSIRA	--	-	220	5	--	-	26	1	29	13	--	-
....STEPHANODISCUS	--	-	--	-	77	7	--	-	--	-	--	-
..PENNALES												
...ACHNANTHACEAE												
....ACHNANTHES	190	11	150	3	26	2	26	1	14	7	9	1
....COCCONEIS	--	-	--	-	--	-	--	-	--	-	110	10
....RHOICOSPHENIA	29	2	37	1	--	-	--	-	14	7	170#	16
...CYMBELLACEAE												
....AMPHORA	--	-	370	8	--	-	--	-	--	-	--	-
....CYMBELLA	560#	34	700#	16	--	-	--	-	14	7	45	4
...DIATOMACEAE												
....DIATOMA	120	7	150	3	--	-	--	-	--	-	63	6
...FRAGILARIACEAE												
....FRAGILARIA	14	1	--	-	--	-	--	-	--	-	--	-
....SYNEDRA	--	-	73	2	--	-	--	-	--	-	90	8
...GOMPHONEMATACEAE												
....GOMPHONEMA	220	13	1400#	32	--	-	26	1	29	13	9	1
...MERIDIONACEAE												
....MERIDION	--	-	37	1	--	-	--	-	--	-	--	-
...NAVICULACEAE												
....NAVICULA	100	6	590	13	--	-	39	2	14	7	340#	31
...NITZSCHIACEAE												
....NITZSCHIA	58	3	370	8	13	1	39	2	45#	20	63	6
CYANOPHYTA (BLUE-GREEN ALGAE)												
.CYANOPHYCEAE												
..CHROOCOCCALES												
...CHROOCOCCACEAE												
....ANACYSTIS	140	9	--	-	170#	16	620#	30	--	-	--	-
..HORMOGONALES												
...OSCILLATORIACEAE												
....LYNGBYA	160	10	--	-	--	-	--	-	--	-	--	-
....OSCILLATORIA	--	-	--	-	770#	72	1300#	62	58#	27	--	-
EUGLENOPHYTA (EUGLENOIDS)												
.EUGLENOPHYCEAE												
..EUGLENALES												
...EUGLENACEAE												
....TRACHELOMONAS	58	3	--	-	--	-	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

06192500 YELLOWSTONE RIVER NEAR LIVINGSTON, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	WEATHER (WMO CODE NUMBER) (00041)
SEP									
06...	0800	235	8.1	6.0	14.0	7.9	89	652	0
06...	0900	235	8.1	12.0	13.5	8.3	93	652	0
06...	1000	239	8.3	16.5	14.0	8.9	101	651	0
06...	1100	--	--	--	14.5	9.4	108	--	--
06...	1200	239	8.5	22.5	15.0	9.8	113	651	0
06...	1300	240	8.6	24.0	15.5	10.2	119	650	0
06...	1400	--	--	26.0	16.5	10.3	123	649	0
06...	1500	--	--	--	16.5	10.3	123	--	--
06...	1600	--	--	--	17.0	10.3	124	--	--
06...	1700	240	8.8	32.0	18.0	10.2	126	648	1
06...	1800	--	--	30.0	18.5	9.8	122	647	1
06...	1900	240	8.8	27.5	18.0	9.3	115	647	1
06...	2000	--	--	--	17.5	8.7	107	--	--
06...	2100	--	--	--	17.0	8.2	99	--	--
06...	2200	--	--	--	17.0	7.9	96	648	--
06...	2300	240	8.6	17.5	17.0	7.7	93	648	1
06...	2400	--	--	--	16.5	7.6	91	--	--
07...	0100	--	--	--	16.0	7.6	90	--	--
07...	0200	--	--	--	16.0	7.6	90	--	--
07...	0300	--	--	--	15.5	7.5	88	--	--
07...	0400	--	--	--	15.0	7.5	87	--	--
07...	0500	--	--	--	14.5	7.6	87	--	--
07...	0600	--	--	--	14.5	7.6	87	--	--
07...	0700	242	8.0	9.0	14.5	7.6	87	651	0
07...	0800	--	--	8.0	14.0	7.7	87	650	0

06195600 .HIELDS RIVER NEAR LIVINGSTON, MT

LOCATION.--Lat 45°44'01", long 110°28'22", in NE¼SE¼ sec.22, T.1 S., R.10 E., Park County, Hydrologic Unit 10070003, on right bank 0.2 mi (0.3 km) northeast of U.S. Highway 89, 1.1 mi (1.8 km) upstream from confluence with Yellowstone River, and 6.5 mi (10.5 km) northeast of Livingston.

DRAINAGE AREA.--852 mi^2 (2,207 km^2).

PERIOD OF RECORD.--October 1, 1978, to September 30, 1979.

GAGE.--Water-stage recorder. Altitude of gage is 4,410 ft (1,344 m), from topographic map.

REMARKS.--Records poor. Diversions for irrigation of about 32,000 acres (130 km^2) above station. Several observations of water temperature were made during the year and are available in files of the Helena district office.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,600 ft^3/s (159 m^3/s) June 20, 1979, gage height, 6.80 ft (2.073 m); minimum daily, 90 ft^3/s (2.55 m^3/s) Jan. 29, 1979.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,600 ft^3/s (159 m^3/s) June 20, gage height, 6.80 ft (2.073 m); minimum daily, 9.0 ft^3/s (2.55 m^3/s) Jan. 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	398	200	140	120	110	120	269	1010	948	877	227	197
2	375	216	130	120	110	110	255	1010	818	786	197	191
3	362	216	140	130	120	120	269	1030	781	738	179	182
4	354	213	150	120	120	120	266	1030	793	685	176	171
5	345	210	140	100	130	130	273	1160	799	680	176	168
6	345	197	140	110	130	140	367	1270	837	613	166	166
7	328	203	130	110	120	200	483	1270	818	581	156	154
8	320	210	120	120	120	230	524	1150	721	550	158	149
9	308	220	130	120	130	220	550	1030	608	540	161	147
10	296	197	140	130	140	220	561	934	478	518	166	142
11	288	140	150	140	150	258	540	899	480	488	173	151
12	284	150	140	120	150	277	478	857	520	477	168	147
13	277	170	140	130	150	312	459	864	520	477	168	151
14	277	180	150	130	130	316	459	934	480	438	182	142
15	269	210	150	130	110	316	469	1040	640	424	185	145
16	266	200	140	130	100	337	550	1260	560	406	182	136
17	255	190	140	120	120	380	652	1470	500	374	173	129
18	251	180	140	120	130	367	824	1520	1400	349	179	127
19	248	170	130	110	150	354	892	1480	4000	308	191	125
20	241	170	130	100	150	328	818	1430	4760	266	182	129
21	237	170	140	100	140	320	745	1390	3380	244	179	125
22	227	190	140	110	130	333	745	1450	2550	210	182	121
23	230	190	140	120	130	300	757	1520	2160	234	182	117
24	230	180	150	100	120	320	787	1580	1760	223	173	115
25	220	190	140	110	120	371	763	1660	1470	234	194	113
26	223	190	140	110	130	337	709	1740	1220	223	203	111
27	220	180	130	100	130	324	715	1670	1140	197	210	109
28	216	165	120	95	120	292	763	1800	1050	255	216	111
29	216	160	110	90	---	296	830	1810	955	277	213	107
30	216	150	110	95	---	281	899	1520	898	266	200	103
31	191	---	120	100	---	269	---	1090	---	248	191	---
TOTAL	8513	5607	4210	3540	3590	8298	17671	39878	38064	13186	5688	4181
MEAN	275	187	136	114	128	268	589	1286	1269	425	183	139
MAX	398	220	150	140	150	380	899	1810	4760	877	227	197
MIN	191	140	110	90	100	110	255	857	478	197	156	103
AC-FT	16890	11120	8350	7020	7120	16460	35050	79100	75500	26150	11280	8290

WTR YR 1979 TOTAL 152426 MEAN 418 MAX 4760 MIN 90 AC-FT 302300

06200000 BOULDER RIVER AT BIG TIMBER, MT

LOCATION.--Lat 45°50'03", long 109°56'17", in NE¼SE¼ sec.14, T.1 N., R.14 E., Sweet Grass County, Hydrologic Unit 10070002, on left bank at Old Boulder Bridge, 1 mi (2 km) east of Big Timber, and 1.6 mi (2.6 km) upstream from mouth.

DRAINAGE AREA.--523 mi² (1,355 km²).

PERIOD OF RECORD.--April 1947 to December 1953, March 1955 to current year. Monthly discharge only for April 1947, published in WSP 1309.

GAGE.--Water-stage recorder. Datum of gage is 4,056.39 ft (1,236.388 m) National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers).

REMARKS.--Records good except those for Oct. 1 to Dec. 15 and Feb. 21 to Apr. 19, which are fair, and those for Dec. 16 to Feb. 20, which are poor. Diversions for irrigation of about 13,300 acres (53.8 km²), of which about 250 acres (1.01 km²) is below station. Several observations of water temperatures were made during the year and are available in files of Helena district office.

AVERAGE DISCHARGE.--30 years, 619 ft³/s (17.53 m³/s) 448,500 acre-ft/yr (553 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,840 ft³/s (279 m³/s) May 28, 1956, gage height, 7.84 ft (2.390 m); maximum gage height, 8.25 ft (2.515 m) July 8, 1975; minimum discharge, 10 ft³/s (0.28 m³/s) about Aug. 26 or 27, 1961.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 3,000 ft³/s (85.0 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
May 28	0900	3,990	113	6.22	1.896	June 14	0845	*5,070	144	*6.83	2.082
June 6	1000	3,530	100	5.93	1.807	June 26	0800	3,640	103	6.00	1.829

Minimum discharge, 69 ft³/s (1.95 m³/s) Sept. 27, 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	410	228	196	170	150	136	183	274	1040	2880	308	230
2	406	243	166	190	180	132	172	282	926	2310	289	224
3	375	237	147	220	190	111	175	271	935	2200	271	208
4	350	234	205	200	180	127	169	278	1480	1980	260	191
5	338	231	199	220	170	152	167	333	2210	1820	240	183
6	327	234	176	240	180	194	169	409	3100	1640	205	175
7	315	216	166	200	200	274	180	395	2430	1510	159	162
8	315	219	161	180	190	271	188	354	1700	1450	138	152
9	312	246	191	180	170	199	188	333	1280	1370	136	143
10	301	210	276	190	160	172	191	301	1160	1210	134	136
11	290	163	301	190	150	177	194	285	1530	1120	123	136
12	286	161	234	190	140	185	183	278	2100	988	119	129
13	276	173	243	210	130	188	180	271	3320	1060	138	123
14	269	178	293	190	130	180	175	282	4480	988	224	136
15	266	207	225	180	140	180	172	316	3290	851	205	136
16	262	234	220	180	150	183	177	429	2620	772	185	121
17	262	237	220	180	160	188	185	671	2660	713	180	106
18	286	225	210	180	170	185	214	780	2800	657	183	106
19	269	183	200	140	160	180	240	859	3170	579	208	100
20	262	166	190	150	160	177	230	952	2720	537	211	98
21	259	160	210	160	175	175	211	1070	2660	497	208	93
22	262	210	220	160	175	175	208	1400	2750	481	220	87
23	253	220	200	150	143	177	211	1700	2630	555	206	82
24	249	220	200	150	130	172	211	2080	2560	497	217	79
25	249	213	190	140	167	177	202	2220	2800	470	271	75
26	245	207	190	140	162	180	205	2510	3220	449	260	73
27	246	202	190	140	159	175	199	2820	3160	449	260	73
28	240	196	200	130	154	180	208	3590	3060	419	267	73
29	240	194	220	130	---	188	230	2580	2980	390	260	73
30	246	194	200	120	---	183	250	1770	2950	358	236	72
31	222	---	190	140	---	177	---	1320	---	333	217	---
TOTAL	8888	6241	6429	5340	4545	5550	5867	31413	73721	31533	6540	3775
MEAN	287	208	207	172	162	179	196	1013	2457	1017	211	126
MAX	410	246	301	240	200	274	250	3590	4480	2880	308	230
MIN	222	160	147	120	130	111	167	271	926	333	119	72
AC-FT	17630	12380	12750	10590	9020	11010	11640	62310	146200	62550	12970	7490

CAL YR 1978 TOTAL 282200 MEAN 773 MAX 5590 MIN 95 AC-FT 559700
WTR YR 1979 TOTAL 189840 MEAN 520 MAX 4480 MIN 72 AC-FT 376500

06204050 WEST ROSEBUD CREEK NEAR ROSCOE, MT

LOCATION.--Lat 45°14'35", long 109°43'50", in NE¼ sec.10, T.7 S., R.16 E., Stillwater County, Hydrologic Unit 10070005, on left bank at Mystic Lake powerplant, 2 mi (3 km) downstream from Mystic Lake, and 13 mi (21 km) southwest of Roscoe.

DRAINAGE AREA.--52.1 mi² (134.9 km²).

PERIOD OF RECORD.--September 1965 to current year.

GAGE.--Water-stage recorder and sharp-crested weir. Datum of gage is 6,535.60 ft (1,992.051 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Flow regulated by Mystic Lake (see p. 611,612). Several observations of water temperatures were made during the year and are available in files of Helena district office.

AVERAGE DISCHARGE.--14 years, 129 ft³/s (3.653 m³/s), 33.62 in/yr (854 mm/yr) 93,460 acre-ft/yr (115 hm³/yr), adjusted for change in contents in Mystic Lake.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,630 ft³/s (46.2 m³/s) July 6, 1975, gage height, 4.71 ft (1.436 m); minimum daily, 2.5 ft³/s (0.071 m³/s) Apr. 3, 4, 6, 7, 1967.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 576 ft³/s (16.3 m³/s) July 3, gage height, 2.53 ft (0.771 m); minimum daily, 7.3 ft³/s (0.21 m³/s) May 11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	106	37	26	38	25	135	119	100	136	251	223	168
2	95	33	25	34	23	132	116	97	134	419	215	169
3	97	35	29	29	22	130	116	97	135	479	210	169
4	82	56	29	28	22	130	116	98	140	435	204	171
5	82	22	26	27	21	128	117	105	144	420	205	176
6	80	31	26	27	21	130	118	106	149	434	199	176
7	77	34	26	26	21	131	120	103	146	389	195	174
8	71	40	33	26	21	128	119	98	144	370	185	173
9	67	20	36	26	20	128	119	96	146	359	162	173
10	75	25	28	26	20	128	119	42	145	351	198	173
11	55	32	26	25	40	128	119	7.3	145	342	239	172
12	48	40	27	25	93	123	117	7.6	150	335	208	171
13	51	36	26	25	115	43	117	7.9	157	320	201	172
14	54	26	26	24	151	126	117	9.3	163	310	206	172
15	49	27	27	24	182	126	117	12	160	291	192	172
16	48	35	26	24	155	128	118	72	157	279	196	172
17	48	34	27	24	138	128	119	108	155	239	201	83
18	54	24	27	23	137	126	111	111	161	195	199	23
19	57	24	27	23	135	126	95	113	164	235	215	24
20	52	30	27	23	135	124	95	112	175	276	233	24
21	34	36	28	24	135	124	95	113	187	280	246	23
22	41	50	27	24	136	124	92	117	186	299	228	23
23	49	61	27	24	137	123	93	116	184	294	207	24
24	49	43	27	24	134	121	93	116	184	244	191	23
25	36	39	27	24	134	121	92	122	186	211	186	23
26	39	37	26	24	135	121	91	127	187	214	187	26
27	37	36	26	24	135	121	91	129	191	254	187	26
28	38	44	28	23	134	122	95	131	193	257	184	27
29	38	29	30	24	---	127	99	125	196	246	180	27
30	30	26	40	27	---	128	99	126	199	239	172	27
31	37	---	43	29	---	126	---	134	---	234	180	---
TOTAL	1776	1042	879	798	2577	3836	3244	2858.1	4899	9501	6234	3156
MEAN	57.3	34.7	28.4	25.7	92.0	124	108	92.2	163	306	201	105
MAX	106	61	43	38	182	135	120	134	199	479	246	176
MIN	30	20	25	23	20	43	91	7.3	134	195	162	23
AC-FT	3520	2070	1740	1580	5110	7610	6430	5670	9720	18850	12370	6260
MEAN +	57	31	30	26	7	11	16	148	376	340	201	86
CFSM +	1.09	.60	.58	.50	.13	.21	.31	2.84	7.22	6.53	3.86	1.65
IN +	1.26	.67	.66	.57	.14	.24	.34	3.28	8.05	7.52	4.45	1.84
AC-FT+	3,510	1,870	1,840	1,580	380	660	950	9,120	22,360	20,890	12,370	5,100

OBSERVED

CAL YR 1978	TOTAL	44,064.4	MEAN	121	MAX	774	MIN	5.4	AC-FT	87,400
WTR YR 1979	TOTAL	40,800.1	MEAN	112	MAX	479	MIN	7.3	AC-FT	80,930

ADJUSTED

CAL YR 1978	TOTAL	47,889	MEAN	131	CFSM	2.51	IN	34.16	AC-FT	95,000
WTR YR 1979	TOTAL	40,652	MEAN	111	CFSM	2.13	IN	29.02	AC-FT	80,630

(+) Adjusted for change in contents of Mystic Lake.

06205000 STILLWATER RIVER NEAR ABSAROKEE, MT

LOCATION.--Lat 45°33'04", long 109°23'12", in NE¼NW¼ sec.28, T.3 S., R.19 E., Stillwater County, Hydrologic Unit 10070005, on right bank 3 mi (5 km) downstream from Rosebud Creek, 3.5 mi (5.6 km) northeast of Absarokee, 9 mi (14 km) southwest of Columbus, and at mile 10.8 (17.4 km).

DRAINAGE AREA.--975 mi² (2,525 km²).

PERIOD OF RECORD.--July 1910 to September 1914 (no winter records), March 1935 to current year.

REVISED RECORDS.--WSP 1309: 1911(M). WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 3,873.8 ft (1,180.73 m) National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to Oct. 1, 1914, nonrecording gage, and Mar. 26, 1935, to Sept. 30, 1942, nonrecording gage, at bridge 2 mi (3 km) upstream at different datums.

REMARKS.--Records good except those for winter period, which are poor. Flow partly regulated by Mystic Lake (see p. 611,612).Diversions for irrigation of about 24,300 acres (98.3 km²), of which 400 acres (1.62 km²) lies below station. Several observations of water temperature were made during the year and are available in files of Helena district office.

AVERAGE DISCHARGE.--44 years (1935-79), 969 ft³/s (27.44 m³/s), 702,000 acre-ft/yr (866 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,000 ft³/s (340 m³/s) June 15, 1967, gage height, 7.17 ft (2.185 m); minimum observed, 58 ft³/s (1.64 m³/s) Apr. 2, 1936.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,340 ft³/s (151 m³/s) June 14, gage height, 4.83 ft (1.472 m), only peak above base of 4,400 ft³/s (125 m³/s); minimum daily, 150 ft³/s (4.25 m³/s) Dec. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	631	465	360	200	210	330	515	687	1590	3240	987	893
2	797	460	270	220	220	320	493	714	1450	2860	936	845
3	771	447	210	220	240	330	502	658	1400	2730	900	805
4	741	453	320	210	250	350	491	645	1750	2590	865	773
5	716	442	290	180	280	300	488	685	2370	2480	832	754
6	690	411	270	230	270	640	504	761	3250	2340	799	675
7	682	416	240	220	280	1080	500	752	3010	2200	779	602
8	659	419	260	220	250	930	590	733	2230	2110	786	658
9	635	485	270	220	270	748	603	740	1790	2000	735	669
10	617	363	290	240	290	611	644	704	1590	1910	711	669
11	581	310	320	250	260	628	627	631	1730	1840	779	675
12	572	310	310	230	330	709	596	582	2230	1780	754	675
13	559	370	280	210	290	680	578	561	3430	1700	886	658
14	553	350	350	220	280	561	569	563	4760	1650	1100	630
15	544	360	330	240	220	612	584	600	3900	1580	1100	607
16	551	410	310	300	210	637	620	719	2770	1490	1020	581
17	523	430	320	290	270	609	671	967	2540	1460	965	549
18	554	350	310	300	320	588	742	1080	2820	1380	929	458
19	538	310	310	300	330	563	736	1160	2830	1320	980	414
20	522	290	290	320	320	551	680	1220	2290	1310	1050	393
21	505	330	300	320	270	520	642	1320	2180	1290	1030	389
22	533	440	310	300	270	519	632	1580	2150	1260	1010	372
23	508	450	310	290	250	507	634	1900	2180	1320	965	365
24	504	430	320	300	280	511	632	2240	2260	1250	943	361
25	520	400	300	290	340	557	610	2480	2590	1190	995	357
26	509	390	280	280	370	517	605	2750	2940	1190	1020	372
27	497	380	290	240	370	506	592	3130	3110	1200	1020	376
28	486	430	240	240	360	492	593	3890	3060	1190	1010	381
29	481	420	190	200	---	512	620	3240	3110	1140	955	365
30	473	400	150	200	---	528	638	2320	3170	1090	950	357
31	440	---	180	210	---	518	---	1840	---	1060	922	---
TOTAL	18080	11919	8780	7690	7920	17524	18011	41852	76480	53150	28716	16678
MEAN	583	397	283	248	283	565	600	1350	2549	1715	926	556
MAX	631	485	360	320	370	1080	742	3890	4760	3240	1100	893
MIN	440	290	150	180	210	320	488	561	1400	1060	711	357
AC-FT	35860	23640	17420	15250	15710	34760	35720	83010	151700	105400	56960	33080

CAL YR 1978 TOTAL 384649 MEAN 1054 MAX 5800 MIN 150 AC-FT 763000
WTR YR 1979 TOTAL 306800 MEAN 841 MAX 4760 MIN 150 AC-FT 608500

06205200 YELLOWSTONE RIVER AT LAUREL, MT

LOCATION.--Lat 45°39'15", long 108°45'32", in SW¼SW¼SW¼ sec.15, T.2 S., R.24 E., Yellowstone County, Hydrologic Unit 10070004, at bridge on U.S. Highway 310, 1.3 mi (2.1 km) southeast of Laurel, 2.5 mi (4.0 km) upstream from Clarks Fork Yellowstone River, and at mile 396.3 (637.6 km).

DRAINAGE AREA.--8,189 mi² (21,210 km²).

PERIOD OF RECORD.--Water years 1974 to September 1979 (discontinued).

REMARKS.--Water discharge computed by subtracting the discharge of Clarks Fork Yellowstone River near Silesia (station 06208800) from that of Yellowstone River at Billings (station 06214500).

REVISIONS.--The concentrations of total recoverable lead for Aug. 23 (1000 hours), Sept. 27 (1215 hours) were found in error and have been deleted.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	TUR-BID-ITY (JTU) (00070)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)
OCT										
13...	1000	5230	0	284	8.4	3.0	7.5	1	--	10.3
31...	0930	4740	0	307	8.3	2.0	4.0	2	--	11.5
NOV										
15...	0830	3500	0	361	8.2	-12.0	.0	0	--	12.6
30...	0930	4050	84	328	8.1	-2.5	.0	1	--	12.5
DEC										
08...	1300	2700	0	381	7.7	-8.0	.0	1	--	13.9
29...	1100	1800	0	383	7.6	-25.0	.0	1	--	13.4
JAN										
10...	1430	2600	2	380	8.4	-5.0	.0	1	--	13.2
30...	1430	2100	0	395	8.1	-15.0	.0	1	--	12.7
FEB										
15...	1000	2500	1	350	7.9	-18.0	.0	1	--	11.7
28...	1110	3300	40	387	8.6	-5.0	.0	3	--	12.0
MAR										
08...	1200	6000	1	277	7.6	4.5	.0	170	--	11.8
29...	0900	4470	2	450	8.3	8.0	3.0	7	--	12.0
APR										
17...	1300	5150	1	378	8.4	26.0	12.0	5	--	10.0
MAY										
04...	0830	6660	0	328	7.9	5.0	10.0	--	10	9.4
15...	1400	5930	1	291	8.9	29.0	15.0	--	7.0	10.4
JUN										
08...	0845	24400	1	120	7.9	8.5	8.5	--	25	9.9
19...	1300	27700	88	152	7.8	16.5	11.0	--	110	9.4
JUL										
11...	0800	13200	0	160	8.2	18.0	12.0	--	3.6	8.0
17...	1345	9770	0	200	8.6	29.0	19.5	--	3.1	8.8
AUG										
02...	1030	5770	0	252	8.4	30.0	20.5	--	5.8	7.8
21...	1230	5820	2	264	8.5	25.5	17.0	--	2.9	9.7
SEP										
06...	1130	4190	0	287	8.4	23.0	17.0	--	4.6	9.8

06205200 YELLOWSTONE RIVER AT LAUREL, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	COLI-FORM, TOTAL, IMMED. (COLS. PER 100 ML) (31501)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)
OCT										
13...	95	26	280	K4	--	--	--	--	--	--
31...	97	50	180	K7	--	--	--	--	--	--
NOV										
15...	96	8	280	K7	--	--	--	--	--	--
30...	96	5	210	K5	--	--	--	--	--	--
DEC										
08...	106	14	150	K3	--	--	--	--	--	--
29...	101	10	1200	K12	--	--	--	--	--	--
JAN										
10...	102	8	110	22	--	--	--	--	--	--
30...	97	6	450	K6	--	--	--	--	--	--
FEB										
15...	88	10	630	40	--	--	--	--	--	--
28...	93	3	500	K10	--	--	--	--	--	--
MAR										
08...	90	46	1300	260	--	--	--	--	--	--
29...	102	6	200	K1	--	--	--	--	--	--
APR										
17...	106	--	210	K4	--	--	--	--	--	--
MAY										
04...	93	16	880	52	--	--	--	--	--	--
15...	116	18	100	K8	--	--	--	--	--	--
JUN										
08...	94	11	1400	230	--	--	--	--	--	--
19...	97	30	1900	1900	--	--	--	--	--	--
JUL										
11...	83	9	2700	55	61	0	16	5.2	9.6	.5
17...	106	9	K37	K13	--	--	--	--	--	--
AUG										
02...	97	6	--	K12	--	--	--	--	--	--
21...	112	11	--	51	--	--	--	--	--	--
SEP										
06...	113	4	<1	K15	--	--	--	--	--	--

DATE	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)
OCT									
13...	--	--	--	--	--	--	--	.24	2540
31...	--	--	--	--	--	--	--	.26	2410
NOV									
15...	--	120	--	--	--	--	--	.32	2200
30...	--	110	--	--	--	--	--	.27	2150
DEC									
08...	--	120	--	--	--	--	--	--	--
29...	--	130	--	--	--	--	--	.34	1210
JAN									
10...	--	120	--	--	--	--	--	.33	1690
30...	--	130	--	--	--	--	--	.32	1330
FEB									
15...	--	100	--	--	--	--	--	.29	1440
28...	--	110	--	--	--	--	--	.31	2040
MAR									
08...	--	150	--	--	--	--	--	.23	2750
29...	--	140	--	--	--	--	--	.36	3210
APR									
17...	--	130	--	--	--	--	--	.32	3310
MAY									
04...	--	110	--	--	--	--	--	.27	3520
15...	--	100	--	--	--	--	--	.25	2960
JUN									
08...	--	39	--	--	--	--	--	.10	4940
19...	--	45	--	--	--	--	--	.13	7330
JUL									
11...	2.0	62	18	3.5	.4	12	104	.15	3850
17...	--	69	--	--	--	--	--	.16	3110
AUG									
02...	--	86	--	--	--	--	--	.20	2340
21...	--	90	--	--	--	--	--	E.22	2560
SEP									
06...	--	110	--	--	--	--	--	E.23	1920

06205200 YELLOWSTONE RIVER AT LAUREL, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	SOLIDS, SUSP. TOTAL, RESIDUE AT 110 DEG. C (MG/L) (70299)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) (00631)	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITROGEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)
OCT								
13...	2	.02	--	.01	.37	.38	.01	2.5
31...	9	.04	--	.01	2.0	2.0	.01	1.6
NOV								
15...	14	.13	--	.01	.19	.20	.01	1.1
30...	0	.57	--	.00	.39	.39	.01	1.8
DEC								
08...	3	.28	--	.01	.16	.17	.03	1.9
29...	12	.35	--	.01	.17	.18	.02	1.6
JAN								
10...	1	.37	--	.01	.50	.51	.02	1.3
30...	3	.49	--	.08	.12	.20	.03	1.0
FEB								
15...	5	.41	--	.08	.12	.20	.04	1.6
28...	0	.38	--	.02	.18	.20	.03	3.0
MAR								
08...	304	.49	--	.23	.87	1.1	.10	12
29...	4	.25	--	.02	.17	.19	.01	2.5
APR								
17...	26	.06	--	.03	.08	.11	.02	4.1
MAY								
04...	59	.12	--	.04	.33	.37	.04	5.8
15...	22	.00	--	.01	.38	.39	.02	3.8
JUN								
08...	85	.09	--	.03	.60	.63	.10	5.3
19...	378	.10	--	.04	.59	.63	.25	6.1
JUL								
11...	17	.03	.00	.00	.14	.14	.02	2.9
17...	12	.01	--	.03	.37	.40	.00	5.0
AUG								
02...	18	.01	--	.00	.32	.32	.01	3.0
21...	15	.03	--	.00	.41	.41	.02	3.9
SEP								
06...	9	.02	--	.03	.53	.56	.01	2.8

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD) (01027)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)	LEAD, TOTAL RECOVERABLE (UG/L AS PB) (01051)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)	MERCURY TOTAL RECOVERABLE (UG/L AS HG) (71900)	SELENIUM, TOTAL (UG/L AS SE) (01147)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)
OCT											
31...	0930	11	--	0	0	130	<100	10	.0	0	10
NOV											
30...	0930	15	--	10	33	230	0	10	.0	1	20
DEC											
29...	1100	15	0	0	0	90	0	20	.1	2	10
JAN											
30...	1430	16	0	10	50	90	0	0	.0	1	10
FEB											
28...	1110	14	0	10	20	220	0	30	.2	1	30
MAR											
29...	0900	12	0	10	20	440	0	30	.0	1	20
MAY											
04...	0830	12	0	0	0	1700	0	70	.1	0	20
JUN											
08...	0845	7	0	0	0	2800	0	80	.1	0	30
JUL											
11...	0800	9	0	10	40	470	0	10	.0	0	60
AUG											
02...	1030	12	0	10	0	390	30	20	.0	0	30
SEP											
06...	1130	12	0	10	0	260	0	10	.0	0	10

06207500 CLARKS FORK YELLOWSTONE RIVER NEAR BELFRY, MT

LOCATION.--Lat 45°00'37", long 109°03'53", in NW¼SW¼NW¼ sec.32, T.9 S., R.22 E., Carbon County, Hydrologic Unit 10070006, on left bank 0.2 mi (0.3 km) upstream from county road bridge and Big Sand Coulee, revised, 0.8 mi (1.3 km) north of Wyoming-Montana State line, 9.5 mi (15.3 km) southwest of Belfry, and at mile 78.5 (126.3 km).

DRAINAGE AREA.--1,154 mi^2 (2,989 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1921 to current year. Monthly discharge only for some period, published in WSP 1309. Published as Clarks Fork at Chance prior to October 1956 and as Clarks Fork Yellowstone River at Chance October 1956 to September 1968.

REVISED RECORDS.--WSP 1309: 1922 (M). WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 3,986.24 ft (1,215.006 m) National Geodetic Vertical Datum of 1929 (levels by U.S. Army Crops of Engineers). Prior to Nov. 15, 1934, nonrecording gage, and Nov. 15, 1934, to July 26, 1951, water-stage recorder at bridge 0.4 mi (0.6 km) downstream at different datum. July 27, 1951, to Sept. 30, 1953, water-stage recorder at present site at datum 0.98 ft (0.299 m) higher.

REMARKS.--Water-discharge records good except those for winter period and July 4-22, which are poor. Diversions for irrigation of about 11,100 acres (44.9 km^2) above station.

AVERAGE DISCHARGE.--58 years, 953 ft^3/s (26.99 m^3/s), 690,400 acre-ft/yr (851 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,700 ft^3/s (360 m^3/s) July 6, 1975, gage height, 8.77 ft (2.673 m); minimum observed, 32 ft^3/s (0.91 m^3/s) Apr. 26, 1961, result of discharge measurement.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 5,400 ft^3/s (153 m^3/s) and maximum (*):

Date	Time	Discharge		Gage height		Date	Time	Discharge		Gage height	
		(ft^3/s)	(m^3/s)	(ft)	(m)			(ft^3/s)	(m^3/s)	(ft)	(m)
May 28	0700	7,140	202	6.55	1.996	June 15	0345	*8,100	229	*6.98	2.128
June 6	1300	5,900	167	5.95	1.814						

Minimum discharge, 136 ft^3/s (3.85 m^3/s) Sept. 30.

DISCHARGE, STREAM (CUBIC FEET PER SECOND), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	300	173	313	180	220	258	240	494	2230	4680	620	445
2	304	187	300	200	240	247	236	456	1900	4120	560	417
3	292	183	254	220	250	236	229	376	1930	3640	524	385
4	277	185	277	200	270	236	224	417	2570	3200	483	354
5	266	187	292	180	290	243	224	542	3810	2950	450	327
6	251	187	266	190	310	262	232	739	5540	2700	423	309
7	240	177	269	200	320	300	254	596	5010	2600	417	300
8	237	197	269	220	310	336	269	450	3490	2400	417	288
9	224	249	362	230	300	269	277	390	2640	2200	412	281
10	225	265	281	240	310	236	309	345	2250	2100	401	266
11	225	243	264	230	310	262	304	327	2560	2000	395	262
12	221	229	284	220	320	265	288	304	3750	1850	390	266
13	221	262	273	230	330	269	264	304	5790	1750	512	266
14	207	262	292	240	340	258	273	390	7580	1650	830	247
15	204	254	281	250	290	258	266	566	7230	1600	1090	232
16	204	262	281	260	280	266	296	916	5480	1550	964	225
17	200	296	296	270	270	277	304	1230	4920	1450	837	200
18	197	316	277	270	290	266	456	1610	5030	1400	760	180
19	204	296	281	280	320	254	494	1790	4520	1300	760	177
20	204	286	277	280	350	240	423	1980	3670	1250	830	177
21	167	273	269	290	320	236	381	2180	3230	1200	900	177
22	167	304	273	290	290	225	381	2720	3060	1150	879	173
23	160	327	277	260	270	221	417	3190	3020	1100	753	170
24	151	327	277	260	250	221	434	3830	3220	1100	683	163
25	167	327	292	290	260	236	428	4170	3700	1100	690	157
26	154	309	273	280	270	236	395	4940	4150	1020	655	154
27	151	318	260	260	269	232	376	5750	4400	948	614	154
28	148	309	230	240	269	236	376	6510	4350	865	590	157
29	145	309	210	220	---	243	456	5730	4370	809	584	151
30	151	313	190	230	---	251	494	3940	4470	734	518	145
31	167	---	160	250	---	247	---	2650	---	683	461	---
TOTAL	6456	7825	8405	7460	8118	7823	10020	60032	119870	57104	19442	7205
MEAN	208	261	271	241	290	252	334	1937	3996	1842	627	240
MAX	304	327	362	290	350	336	494	6510	7580	4680	1090	445
MIN	145	173	160	180	220	221	224	304	1900	683	390	145
AC-FT	12810	15520	16670	14840	16100	15520	19870	119100	237800	113300	38560	14290

CAL YR 1978 TOTAL 392798 MEAN 1076 MAX 7760 MIN 130 AC-FT 779100
WTR YR 1979 TOTAL 314780 MEAN 862 MAX 7580 MIN 145 AC-FT 634300

06207500 CLARKS FORK YELLOWSTONE RIVER NEAR BELFRY, MT--Continued

WATER-QUALITY RECORDS

LOCATION.--Samples collected at bridge on county road, 0.4 mi (0.6 km) downstream from discharge station, just upstream from Sand Coulee, 0.8 mi (1.3 km) north of Wyoming-Montana State line, 9.5 mi (15.3 km) southwest of Belfry, and at mile 78.1 (125.7 km).

PERIOD OF RECORD.--Water years 1966 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW (CFS) (00060)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)
OCT								
02...	1710	--	304	--	12.5	120	13	34
31...	1030	--	177	--	6.0	160	21	46
DEC								
05...	1400	--	281	--	--	140	17	39
JAN								
17...	0900	270	--	--	--	180	49	49
FEB								
12...	1200	320	--	--	--	150	35	40
MAR								
02...	1100	--	287	--	2.0	130	23	38
APR								
05...	1230	--	224	--	8.5	140	10	38
MAY								
18...	1345	--	1770	--	15.0	59	0	14
JUN								
12...	1340	--	3920	8.1	14.0	33	0	9.0
JUL								
03...	0930	--	3690	7.2	14.0	32	2	9.0
AUG								
01...	1500	--	634	8.8	14.5	90	8	26
29...	1130	--	560	--	14.5	100	13	29

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)
OCT									
02...	9.0	11	.4	1.2	130	0	110	--	36
31...	11	12	.4	1.4	170	0	140	--	54
DEC									
05...	11	8.7	.3	1.0	150	0	120	--	36
JAN									
17...	14	12	.4	1.9	160	0	130	--	63
FEB									
12...	12	15	.5	1.5	140	0	120	--	56
MAR									
02...	8.0	11	.4	1.1	130	0	110	--	37
APR									
05...	12	14	.5	1.4	150	4	130	--	43
MAY									
18...	5.8	6.0	.3	.5	74	0	61	--	9.9
JUN									
12...	2.6	4.0	.3	.8	40	0	33	.5	6.2
JUL									
03...	2.5	3.3	.3	.0	36	0	30	3.6	9.1
AUG									
01...	6.0	6.7	.3	1.0	90	5	82	.3	16
29...	7.3	6.7	.3	1.5	100	3	87	--	21

06207500 CLARKS FORK YELLOWSTONE RIVER NEAR BELFRY, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	NITROGEN, NITRATE DISSOLVED (MG/L AS N) (00618)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)
OCT								
02...	2.9	.0	7.3	235	.32	143	.27	.07
31...	2.9	.3	6.9	217	.30	104	.02	.10
DEC								
05...	1.5	.2	6.9	178	.24	135	.09	.02
JAN								
17...	.7	.3	11	234	.32	171	.14	.00
FEB								
12...	6.4	.2	7.0	212	.29	165	.38	.11
MAR								
02...	6.6	.2	8.1	177	.24	118	.11	.03
APR								
05...	2.0	.2	7.2	200	.27	124	.00	.02
MAY								
16...	1.0	.1	8.4	82	.11	342	.00	.60
JUN								
12...	2.6	.1	7.7	54	.07	372	.00	.14
JUL								
03...	.5	.0	6.4	49	.07	515	.07	.07
AUG								
01...	3.8	.1	5.9	115	.16	197	.09	.01
29...	.5	.1	6.2	130	.18	197	.07	.01

06207510 BIG SAND COULEE AT WYOMING-MONTANA STATE LINE

LOCATION.--Lat 45°00'17", long 109°03'29", in SE¼NE¼SW¼ sec.32, T.9 S., R.22 E., Carbon County, MT, Hydrologic Unit 10070006, on right bank 0.3 mi (0.5 km) north of Wyoming-Montana State line and 0.5 mi (0.8 km) upstream from mouth.

DRAINAGE AREA.--134 mi² (347 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1973 to current year (no winter records).

GAGE.--Water--stage recorder. Altitude of gage is 4,000 ft (1,219 m), from topographic map.

REMARKS.--Water-discharge records good except those for October and July, which are poor. Natural flow of stream affected by transbasin diversions and return flow from irrigated areas.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 382 ft³/s (10.8 m³/s) May 2, 1978, gage height, 4.81 ft (1.466 m), from rating curve extended above 170 ft³/s (4.81 m³/s) on basis of slope-area measurement at gage height 4.75 ft (1.448 m); minimum daily during periods of operation, 1.2 ft³/s (0.034 m³/s) Apr. 18, 1974.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 243 ft³/s (6.88 m³/s) Mar. 8, gage height, 4.30 ft (1.311 m); minimum daily during period of operation, 2.4 ft³/s (0.068 m³/s) Apr. 7-9, 19-22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	112					3.5	2.5	51	49	73	52	94
2	116					3.4	2.5	52	50	61	47	106
3	120					3.1	2.5	48	55	66	50	104
4	118					2.9	2.5	45	51	60	54	94
5	114					3.1	2.5	52	54	55	64	84
6	112					3.2	2.5	70	54	50	64	84
7	112					6.6	2.4	73	64	49	66	86
8	114					55	2.4	85	56	49	78	84
9	108					32	2.4	96	55	48	71	82
10	110					15	2.5	77	60	48	71	80
11	108					12	2.8	69	64	47	70	78
12	104					18	3.2	64	61	48	78	80
13	104					15	2.9	58	70	47	106	78
14	93					9.3	2.8	63	62	47	133	85
15	93					11	2.6	55	81	46	130	75
16	94					13	2.5	40	67	47	138	72
17	95					12	2.5	42	69	47	124	60
18	98					8.2	2.5	54	73	46	125	51
19	98					4.5	2.4	51	85	46	129	50
20	88					3.6	2.4	54	89	46	124	50
21	87					3.6	2.4	50	85	45	125	51
22	80					3.6	2.4	41	93	49	129	50
23	79					3.1	7.0	40	90	47	122	55
24	75					2.9	18	35	89	50	119	62
25	77					3.4	18	51	80	54	114	60
26	77					2.8	18	53	71	70	113	57
27	75					2.5	19	46	69	120	114	51
28	73					2.5	17	48	81	110	121	53
29	73					2.5	19	44	71	90	97	72
30	68					2.5	24	48	69	80	84	72
31	63					2.5	---	50	---	64	86	---
TOTAL	2942					266.5	201.1	1705	2087	1805	2998	2160
MEAN	94.9					8.59	6.70	55.0	69.6	58.2	96.7	72.0
MAX	120					55	24	96	93	120	138	106
MIN	63					2.5	2.4	35	49	45	47	50
AC-FT	5840					528	399	3380	4140	3580	5950	4280

06207510 BIG SAND COULEE AT WYOMING-MONTANA STATE LINE--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1973 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: May 1973 to current year (no winter records).
SUSPENDED SEDIMENT DISCHARGE: May 1973 to current year (no winter records).

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum, 24.0°C July 5, 6, 11, 1973, July 19, 1974, June 27, July 21, Aug. 3, Sept. 7, 1977; minimum, 1.5°C Mar. 19, 1978.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 37,200 mg/L May 8, 1975; minimum daily mean, 1 mg/L Mar. 27, 1977.
SEDIMENT LOADS: Maximum daily, 11,600 tons (10,500 tonnes) Oct. 31, 1974; minimum daily, 0.01 ton (0.01 tonne) Mar. 3, 7, 1976, Mar. 27, Apr. 1, 1977.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum, 21.5°C June 30, July 20, Aug. 1, 5; minimum, 4.0°C Mar. 8.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 3,810 mg/L Mar. 16; minimum daily mean, 4.0 mg/L Mar. 1, Apr. 4, 5.
SEDIMENT LOADS: Maximum daily, 339 tons (308 tonnes) May 12; minimum daily, 0.03 ton (0.03 tonne) Apr. 4, 5.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE (DEG C) (00010)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)
MAR 02...	1230	3.5	810	--	11.0	260	120	74	19	88
APR 04...	1145	2.5	910	--	13.5	280	43	78	21	80
JUN 12...	1200	57	250	7.8	16.0	59	0	17	4.1	18
JUL 03...	0830	71	200	7.3	12.0	59	0	18	3.5	12
AUG 29...	0900	116	245	8.1	14.5	83	5	25	6.1	13

DATE	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	BICARBONATE (MG/L AS HCO3) (00440)	CARBONATE (MG/L AS CO3) (00445)	ALKALINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DISSOLVED (MG/L AS CO2) (00405)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)
MAR 02...	2.4	4.5	180	--	150	--	160	7.0	.3
APR 04...	2.1	3.7	290	--	240	--	170	8.2	.3
JUN 12...	1.0	1.9	75	--	62	1.9	33	1.5	.2
JUL 03...	.7	1.4	73	0	60	5.9	24	1.4	.1
AUG 29...	.6	1.1	95	0	78	1.2	31	1.0	.2

DATE	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) (00631)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N) (00608)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)
MAR 02...	11	462	.63	4.37	2.2	2.2	--	.37	.050
APR 04...	12	520	.72	3.56	2.7	2.6	--	.18	.010
JUN 12...	7.5	121	.16	18.6	.26	.24	.00	--	.100
JUL 03...	6.4	104	.14	19.9	--	.22	.00	--	.110
AUG 29...	7.3	130	.18	40.7	--	.11	.00	--	.020

06207510 BIG SAND COULEE AT WYOMING-MONTANA STATE LINE--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15.5					---	8.5	10.5	13.0	17.5	21.5	15.5
2	13.0					7.0	10.0	7.0	18.5	15.5	19.0	16.5
3	10.5					10.0	11.0	10.0	17.0	21.0	18.0	18.5
4	13.5					10.5	10.0	13.0	16.0	19.0	21.0	18.0
5	11.0					9.0	10.5	15.5	15.5	20.0	21.5	18.5
6	11.5					13.0	15.5	11.0	13.0	19.0	21.0	20.5
7	10.0					9.5	15.0	9.0	10.0	21.0	21.0	16.5
8	13.0					4.0	16.0	7.0	10.0	19.0	20.0	18.5
9	12.0					5.5	16.0	6.0	10.5	19.0	16.5	19.0
10	13.5					5.0	15.5	10.0	15.5	18.5	21.0	18.0
11	13.5					7.0	9.0	10.5	18.5	18.0	21.0	18.5
12	10.0					5.0	10.0	13.0	15.5	18.0	17.5	19.0
13	7.0					7.0	10.0	13.0	19.0	18.5	11.0	18.5
14	10.5					6.5	15.5	15.5	15.5	15.5	15.5	15.5
15	10.0					8.0	14.5	16.5	16.0	17.5	15.5	15.5
16	10.5					8.0	10.0	19.0	18.0	16.5	19.5	19.0
17	10.0					5.0	9.5	16.5	16.5	18.5	21.0	18.5
18	10.5					5.5	14.0	15.0	15.5	20.0	16.0	19.0
19	10.5					7.0	15.0	16.0	10.0	21.0	15.5	18.0
20	13.0					6.5	9.0	14.5	15.0	21.5	16.0	19.0
21	11.0					7.0	10.0	15.5	15.5	21.0	18.5	17.0
22	10.0					10.5	10.0	14.0	16.0	21.0	15.5	16.5
23	10.0					9.5	10.5	16.0	15.5	21.0	18.5	18.5
24	9.5					13.0	10.0	18.5	16.0	20.5	18.5	17.0
25	9.0					6.5	10.5	16.5	15.5	16.5	16.5	18.0
26	8.0					6.5	13.0	15.5	19.0	17.5	18.0	15.5
27	5.0					6.0	15.5	19.5	16.5	15.5	20.5	15.5
28	8.5					11.0	13.5	10.0	19.0	16.0	16.5	16.0
29	10.0					14.5	15.0	7.5	19.0	15.5	20.0	15.0
30	8.0					9.5	15.5	10.0	21.5	15.5	16.5	16.5
31	8.5					12.0	---	13.0	---	21.0	16.5	---
MEAN	10.5					8.0	12.5	13.0	15.5	18.5	18.5	17.5

WTR YR 1979 MEAN 14.5 MAX 21.5 MIN 4.0

06207510 BIG SAND COULEE AT WYOMING-MONTANA STATE LINE--Continued

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	48	15									4	.04
2	49	16									5	.05
3	60	19									15	.13
4	58	18									18	.14
5	63	19									16	.13
6	55	16									9	.08
7	44	13									280	7.2
8	48	15									560	94
9	47	14									295	27
10	45	13									363	14
11	38	11									323	11
12	46	13									420	23
13	42	12									622	28
14	55	14									579	16
15	50	13									756	25
16	46	12									3410	150
17	27	6.9									23[illegible]	84
18	26	6.9									2110	47
19	24	7.4									630	7.7
20	48	11									244	2.4
21	64	15									241	2.3
22	70	16									200	1.9
23	86	18									196	1.6
24	67	14									158	1.2
25	35	7.3									120	1.1
26	25	5.2									100	.76
27	24	4.9									96	.65
28	15	3.0									36	.24
29	16	3.2									26	.18
30	18	3.3									31	.21
31	15	2.6									24	.16
TOTAL	---	357.7									---	547.17

DAY	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	18	.12	248	34	770	102	62	12	30	4.2	45	11
2	10	.07	134	19	162	22	49	8.1	43	5.5	48	14
3	6	.04	103	13	135	20	60	11	43	5.8	40	11
4	4	.03	105	13	142	20	48	7.1	45	6.6	39	9.9
5	4	.03	150	25	144	21	28	4.2	48	8.3	30	6.0
6	10	.07	210	40	124	18	43	5.8	82	11	24	5.4
7	15	.10	160	32	100	17	42	5.6	70	12	26	6.0
8	15	.10	221	51	79	12	51	6.7	88	19	24	5.4
9	16	.10	300	78	69	10	58	7.5	73	14	27	6.0
10	16	.11	760	162	111	18	50	6.5	54	10	35	7.6
11	50	.38	1700	317	135	23	38	4.8	60	11	34	7.2
12	58	.50	1960	334	112	18	54	7.0	54	11	33	7.1
13	28	.22	305	48	165	35	60	7.6	170	49	45	9.5
14	18	.14	172	24	175	39	64	8.1	304	109	34	7.8
15	18	.13	162	24	137	30	40	5.0	190	67	30	6.1
16	19	.13	159	17	64	15	98	12	265	99	29	5.6
17	29	.20	144	16	66	16	84	11	117	39	28	4.5
18	24	.16	170	25	85	17	56	7.0	209	67	35	4.8
19	47	.30	122	17	60	19	43	5.3	262	91	53	7.2
20	18	.12	132	19	388	93	38	4.7	248	83	42	5.7
21	17	.11	100	13	128	29	34	4.1	298	101	39	5.4
22	65	.42	88	9.7	102	26	35	4.6	240	84	29	3.9
23	77	1.5	62	8.9	176	43	36	4.6	140	46	24	3.6
24	72	3.5	119	11	162	44	42	5.7	82	28	20	3.3
25	71	3.5	131	16	126	28	50	7.3	72	22	32	5.2
26	61	3.0	138	20	142	27	47	6.9	36	17	29	4.5
27	56	2.4	166	21	120	22	210	66	49	15	20	2.8
28	55	1.6	146	19	100	22	302	90	54	16	23	3.3
29	57	1.9	131	16	60	15	287	70	84	22	44	8.6
30	137	16	300	34	62	12	272	59	66	15	26	5.1
31	---	---	1010	136	---	---	80	14	50	12	---	---
TOTAL	---	37.48	---	1629.6	---	832	---	483.2	---	1100.4	---	194.5

TOTAL LOAD FOR YEAR: 5161.85 TONS.

06207510 BIG SAND COULEE AT WYOMING-MONTANA STATE LINE--Continued

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPER-ATURE (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)
MAR 02...	1230	11.0	3.5	6	.06
APR 04...	1145	13.5	2.5	16	.11
JUN 12...	1200	16.0	57	144	22
JUL 03...	0830	12.0	71	172	33
AUG 01...	1400	14.0	63	164	28

PARTICLE-SIZE DISTRIBUTION OF SURFACE BED MATERIAL, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	BED MAT. FALL DIAM. % FINER THAN .062 MM (80158)	BED MAT. FALL DIAM. % FINER THAN .125 MM (80159)	BED MAT. FALL DIAM. % FINER THAN .250 MM (80160)	BED MAT. FALL DIAM. % FINER THAN .500 MM (80161)	BED MAT. FALL DIAM. % FINER THAN 1.00 MM (80162)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM (80173)
MAR 02...	1230	10	16	22	32	39	45	56	74	86	100
AUG 01...	1400	5	13	25	40	49	54	65	80	87	100

06208800 CLARKS FORK YELLOWSTONE RIVER NEAR SILESIA, MT

LOCATION.--Lat 45°30'48", long 108°49'42", in NW¼SE¼ sec.1, T.4 S., R.23 E., Carbon County, Hydrologic Unit 10070006, on left bank 0.5 mi (0.8 km) downstream from Whitehorse Canal intake, 1 mi (2 km) upstream from Rock Creek, 3 mi (5 km) south of Silesia, and at mile 19 (31 km).

DRAINAGE AREA.--2,093 mi² (5,421 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1969 to current year. Records for July 1921 to September 1969 (published as Clarks Fork Yellowstone River at Edgar) at site 5 mi (8 km) upstream not equivalent owing to diversion in Whitehorse Canal during irrigation season.

GAGE.--Water-stage recorder. Datum of gage is 3,405.79 ft (1,038.085 m) National Geodetic Vertical Datum of 1929 (levels by Corps of Army Engineers).

REMARKS.--Water-discharge records good except those for winter period, which are poor. Diversion for irrigation of about 42,600 acres (172 km²) of which about 1,100 acres (4.45 km²) lies below station. In addition, about 9,000 acres (36.4 km²) of land above station are irrigated by diversions from the adjoining Rock Creek basin.

AVERAGE DISCHARGE.--10 years, 1,209 ft³/s ((34.24 m³/s), 875,900 acre-ft/yr (1.08 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,800 ft³/s (334 m³/s) June 10, 1972, gage height, 7.51 ft (2.289 m); maximum gage height, 7.82 ft (2.384 m) July 6, 1975; minimum discharge, 88 ft³/s (2.36 m³/s) July 21, 1977, gage height, 0.72 ft (0.219 m).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 5,300 ft³/s (150 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
May 28	1600	6,380	181	5.79	1.765	June 15	1300	*7,440	211	*6.25	1.905
June 7	0900	5,690	161	5.47	1.667						

Minimum daily discharge, 280 ft³/s (7.93 m³/s) Dec. 31.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	768	477	540	350	340	460	427	716	2520	4340	810	738
2	750	472	540	380	360	450	416	725	2000	4060	719	739
3	754	491	560	410	400	460	408	670	1770	3550	648	718
4	721	481	580	390	440	490	398	608	2100	3180	594	657
5	720	480	560	360	470	520	391	666	3060	2950	581	582
6	705	493	540	350	490	600	388	776	4470	2690	568	530
7	680	485	520	350	500	680	414	935	5450	2480	489	498
8	670	463	500	360	470	800	452	742	4110	2320	465	463
9	645	513	540	380	460	740	473	714	3000	2160	495	444
10	608	470	540	360	490	800	506	697	2390	1980	465	424
11	598	410	540	340	490	900	582	607	2340	1830	453	426
12	582	420	540	300	520	900	524	560	3090	1710	471	438
13	583	430	560	300	540	800	470	524	4710	1560	501	436
14	563	440	[illegible]	320	520	659	453	503	6490	1490	941	469
15	552	440	[illegible]	330	440	649	453	543	7080	1400	1240	477
16	535	450	520	350	400	709	455	624	5780	1360	1360	478
17	516	460	540	360	460	755	497	1150	4830	1230	1210	460
18	508	450	540	390	520	705	517	1400	4790	1140	1070	393
19	506	340	520	400	560	598	610	1700	4870	1160	1040	361
20	504	340	500	410	520	531	636	1800	4160	1090	1060	337
21	492	440	520	430	500	502	570	2000	3540	1070	1090	332
22	490	500	520	440	470	492	532	2300	3340	1050	1150	336
23	487	560	540	410	430	466	534	2600	3250	1030	1060	342
24	489	560	520	420	450	462	576	3250	3320	984	907	336
25	480	610	500	440	470	488	579	3680	3630	1030	899	330
26	492	610	480	420	470	460	560	4290	4000	1040	939	332
27	469	610	450	400	460	447	560	4950	4340	1040	946	332
28	476	620	390	360	470	427	533	5830	4360	1320	964	341
29	455	570	350	320	---	432	560	5980	4220	1220	925	342
30	460	560	310	330	---	454	673	4770	4230	967	839	350
31	459	---	280	320	---	451	---	3390	---	874	786	---
TOTAL	17737	14665	15640	11500	13110	18287	15169	59700	117240	55345	25765	13461
MEAN	572	489	505	371	468	590	506	1926	3908	1785	831	449
MAX	768	620	580	440	560	900	673	5980	7080	4340	1380	739
MIN	455	340	280	300	340	427	388	503	1770	874	453	330
AC-FT	35180	29090	31020	22810	26000	36270	30130	118400	232500	109800	51100	26700

CAL YR 1978 TOTAL 458430 MEAN 1256 MAX 7180 MIN 200 AC-FT 909300
WTR YR 1979 TOTAL 377639 MEAN 1035 MAX 7080 MIN 280 AC-FT 749000

06208800 CLARKS FORK YELLOWSTONE RIVER NEAR SILESIA, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: August 1977 to current year.

INSTRUMENTATION.--Temperature recorder since Aug. 24, 1977.

REMARKS.--No temperature record Mar. 26 to Apr. 25.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum, 24.0°C Aug. 6, 1979, minimum, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum, 24.0°C Aug. 6; minimum, 0.0°C on many days during November to March.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	15.0	12.5	13.5	7.0	4.0	5.5	.0	.0	.0	.0	.0	.0
2	13.0	11.0	12.0	7.5	5.0	6.5	.0	.0	.0	.0	.0	.0
3	11.0	9.0	10.0	8.0	5.5	7.0	.0	.0	.0	.0	.0	.0
4	12.5	9.5	11.0	8.5	6.5	7.5	.0	.0	.0	.0	.0	.0
5	12.0	9.0	10.5	7.0	5.0	6.0	.0	.0	.0	.0	.0	.0
6	11.5	8.5	10.0	6.0	3.5	5.0	.0	.0	.0	.0	.0	.0
7	12.5	9.0	10.5	6.0	4.0	5.0	.0	.0	.0	.0	.0	.0
8	13.5	10.0	11.5	7.0	5.5	6.5	.0	.0	.0	.0	.0	.0
9	13.0	9.5	11.5	7.0	1.0	5.0	.0	.0	.0	.0	.0	.0
10	13.0	10.0	11.5	.5	.0	.0	.0	.0	.0	.0	.0	.0
11	13.5	10.5	12.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12	11.5	8.5	10.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
13	9.5	6.5	8.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
14	9.5	6.5	8.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
15	10.5	7.0	9.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
16	10.5	8.0	9.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
17	11.0	9.5	10.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
18	11.5	9.0	10.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
19	12.0	8.5	10.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
20	12.0	9.5	10.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
21	11.0	9.5	10.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
22	10.5	8.5	9.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
23	8.0	6.0	7.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
24	8.5	6.5	7.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
25	8.0	6.0	7.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
26	8.0	5.0	6.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
27	7.5	5.5	6.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
28	8.0	5.5	7.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
29	8.0	6.5	7.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
30	7.0	5.0	6.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
31	6.0	3.5	5.0	---	---	---	.0	.0	.0	.0	.0	.0
MONTH	15.0	3.5	9.5	8.5	.0	2.0	.0	.0	.0	.0	.0	.0

06208800 CLARKS FORK YELLOWSTONE RIVER NEAR SILESIA, MT--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	.0	.0	.0	.0	.0	.0	---	---	---	13.0	9.5	11.5
2	.0	.0	.0	.0	.0	.0	---	---	---	11.5	8.5	9.5
3	.0	.0	.0	.0	.0	.0	---	---	---	13.5	8.5	11.0
4	.0	.0	.0	.0	.0	.0	---	---	---	13.0	10.0	11.5
5	.0	.0	.0	.0	.0	.0	---	---	---	14.5	12.0	13.0
6	.0	.0	.0	.0	.0	.0	---	---	---	13.5	12.0	13.0
7	.0	.0	.0	.0	.0	.0	---	---	---	12.5	9.5	11.0
8	.0	.0	.0	.0	.0	.0	---	---	---	10.5	6.5	8.5
9	.0	.0	.0	.0	.0	.0	---	---	---	6.5	5.5	5.5
10	.0	.0	.0	.0	.0	.0	---	---	---	10.5	5.0	7.5
11	.0	.0	.0	.0	.0	.0	---	---	---	12.0	9.5	11.0
12	.0	.0	.0	.5	.0	.0	---	---	---	13.5	10.0	12.0
13	.0	.0	.0	1.5	.0	.5	---	---	---	15.5	11.0	13.5
14	.0	.0	.0	4.5	.0	2.0	---	---	---	16.5	12.0	14.0
15	.0	.0	.0	6.5	2.0	4.5	---	---	---	17.5	13.0	15.0
16	.0	.0	.0	6.5	4.0	5.5	---	---	---	16.5	14.5	15.0
17	.0	.0	.0	6.5	5.0	5.5	---	---	---	16.5	13.5	15.0
18	.0	.0	.0	5.0	4.5	5.0	---	---	---	16.5	13.5	15.0
19	.0	.0	.0	6.5	4.0	5.0	---	---	---	16.5	12.5	14.5
20	.0	.0	.0	6.5	3.5	4.5	---	---	---	15.0	11.5	13.5
21	.0	.0	.0	8.5	4.0	6.0	---	---	---	16.0	12.5	14.0
22	.0	.0	.0	7.0	5.5	6.0	---	---	---	15.5	13.0	14.0
23	.0	.0	.0	6.5	4.0	5.5	---	---	---	14.5	12.5	13.5
24	.0	.0	.0	8.5	4.5	6.5	---	---	---	14.0	12.5	13.0
25	.0	.0	.0	7.5	4.0	6.0	10.5	---	---	14.0	11.0	12.5
26	.0	.0	.0	5.5	2.0	4.0	10.0	8.5	9.0	15.0	10.5	12.5
27	.0	.0	.0	---	4.0	---	13.5	7.0	10.5	14.0	11.0	12.5
28	.0	.0	.0	---	---	---	14.5	10.5	12.5	13.0	9.0	10.5
29	---	---	---	---	---	---	13.0	9.5	11.5	9.0	7.0	7.5
30	---	---	---	---	---	---	14.0	10.5	12.0	8.0	5.5	6.5
31	---	---	---	---	---	---	---	---	---	9.5	7.0	8.0
MONTH	.0	.0	.0	8.5	.0	2.5	14.5	7.0	11.0	17.5	5.0	12.0

06208800 CLARKS FORK YELLOWSTONE RIVER NEAR SILESIA, MT--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	12.5	8.5	10.5	16.5	14.0	15.5	23.0	19.0	21.0	19.0	15.0	17.0
2	15.5	11.0	13.0	16.5	14.0	15.5	23.5	19.0	21.5	20.0	16.5	18.5
3	17.5	13.0	15.5	17.0	14.5	16.0	23.5	19.5	21.5	20.5	17.0	19.0
4	18.0	14.0	16.0	18.0	16.0	17.0	23.5	19.5	21.5	20.0	17.0	18.5
5	16.0	14.5	15.0	18.5	16.0	17.5	23.5	19.5	21.5	19.5	16.5	18.0
6	15.0	11.0	13.0	18.0	16.5	17.5	24.0	20.0	22.0	20.0	17.5	18.5
7	10.5	8.0	9.0	19.0	16.0	17.5	22.0	19.5	21.0	21.0	18.0	19.0
8	10.0	7.5	8.5	19.5	17.0	18.0	22.5	18.5	20.5	21.0	17.5	19.5
9	12.0	9.0	10.5	20.5	17.0	19.0	23.0	19.0	21.0	21.0	18.0	19.5
10	15.0	11.0	13.0	20.0	17.5	19.0	23.0	18.5	20.5	18.5	17.5	18.0
11	16.5	13.5	15.0	20.5	18.0	19.5	23.0	19.0	21.0	17.5	13.5	15.0
12	16.5	14.0	15.5	21.0	17.5	19.5	20.5	18.5	20.0	16.5	12.5	14.5
13	16.5	13.5	15.0	21.5	18.0	19.5	18.5	15.5	17.0	16.5	13.5	14.5
14	15.0	13.0	13.5	21.0	17.5	19.5	17.0	14.5	16.0	15.5	11.5	14.0
15	14.0	12.5	13.0	20.0	18.0	19.0	20.0	15.5	18.0	16.0	13.0	14.0
16	13.5	10.0	12.0	21.0	18.0	19.5	19.5	18.0	19.0	18.0	13.0	15.5
17	14.5	11.0	13.0	21.5	18.5	20.0	20.5	17.5	19.0	18.5	14.5	16.5
18	14.5	12.5	13.0	22.5	18.5	21.0	20.0	18.5	19.0	17.5	14.0	16.0
19	12.5	9.0	10.5	23.0	19.0	21.0	19.5	18.5	19.0	18.5	14.5	16.5
20	13.5	9.5	11.0	22.0	19.5	21.0	18.5	17.0	18.0	18.0	14.0	16.0
21	14.0	12.5	13.0	23.0	19.0	21.5	17.0	16.5	17.0	18.0	13.5	15.5
22	15.5	12.5	14.0	22.0	20.0	21.0	20.5	17.0	19.0	18.5	14.0	16.0
23	16.0	13.5	14.5	22.5	19.5	21.0	20.5	17.5	19.0	18.0	14.0	16.0
24	16.5	14.0	15.5	22.5	19.5	21.0	20.5	18.0	19.0	18.0	13.5	15.5
25	16.5	15.0	16.0	21.5	19.0	20.0	20.0	18.0	18.5	18.0	13.5	16.0
26	16.5	13.5	15.0	20.5	18.5	19.0	19.0	18.0	18.5	17.0	14.5	16.0
27	16.0	14.5	15.0	21.0	18.0	19.5	18.5	17.0	18.0	17.0	13.0	15.0
28	17.0	13.5	15.0	22.0	---	---	19.5	15.5	17.5	16.5	13.0	15.0
29	17.5	14.5	16.0	21.0	---	---	20.5	17.0	18.5	17.0	13.0	15.0
30	18.0	15.0	16.5	21.5	18.5	20.0	20.0	18.0	19.0	16.0	13.5	14.5
31	---	---	---	22.5	18.5	20.5	18.5	16.5	18.0	---	---	---
MONTH	18.0	7.5	13.5	23.0	14.0	19.0	24.0	14.5	19.5	21.0	11.5	16.5
YEAR	24.0	.0	8.5									

06209500 ROCK CREEK NEAR RED LODGE, MT

LOCATION.--Lat 45°07'15", long 109°17'45", in NW¼NW¼ sec.20, T.8 S., R.20 E., Carbon County, Hydrologic Unit 10070006, on left bank at downstream side of bridge, 3 mi (5 km) upstream from West Fork, and 4.5 mi (7.2 km) southwest of Red Lodge.

DRAINAGE AREA.--124 mi² (321 km²).

PERIOD OF RECORD.--April to December 1932, May 1934 to current year. Monthly discharge only for May 1934, published in WSP 1309.

REVISED RECORDS.--WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 6,099.42 ft (1,859.103 m), revised, National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to Oct. 1, 1937, nonrecording gage at same site and datum.

REMARKS.--Records fair. Flow partly regulated by Glacier Lake. No diversions above station. Several observations of water temperature were made during the year and are available in files of Helena district office.

AVERAGE DISCHARGE.--45 years, 174 ft³/s (4.928 m³/s), 126,100 acre-ft/yr (155 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,110 ft³/s (88.1 m³/s) June 4, 1957, gage height, 4.78 ft (1.457 m), from rating curve extended above 1,300 ft³/s (36.8 m³/s); maximum gage height observed, 4.80 ft (1.463 m) June 1937; minimum discharge observed, 14 ft³/s (0.40 m³/s) Nov. 29, 1954, result of discharge measurement.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 660 ft³/s (18.7 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
May 27	2315	*882	25.0	*3.50	1.067	June 30	2400	675	19.2	3.23	0.985
June 14	0030	882	25.0	3.50	1.067						

Minimum discharge, 23 ft³/s (0.65 m³/s) Mar. 20, 21, gage height, 1.17 ft (0.357 m).

DISCHARGE, STREAM (CUBIC FEET PER SECOND), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	102	61	50	33	32	30	29	46	252	602	266	188
2	100	60	45	35	32	30	30	43	235	528	259	175
3	95	60	44	36	32	30	30	42	292	494	252	167
4	97	59	56	35	32	30	28	46	415	494	238	167
5	91	56	48	34	32	30	29	54	511	480	235	161
6	90	50	44	35	31	30	30	59	589	494	238	156
7	88	60	42	36	31	30	30	52	430	486	238	154
8	86	55	42	37	31	30	31	52	333	467	225	151
9	85	58	45	37	32	30	34	49	281	435	259	147
10	83	56	47	36	31	30	35	47	277	425	288	149
11	80	54	50	36	30	31	32	48	377	420	277	142
12	78	56	49	35	30	31	31	47	540	405	284	135
13	77	58	46	35	32	30	30	48	704	396	400	128
14	77	61	48	35	31	30	30	50	825	391	405	120
15	75	62	49	35	30	30	33	61	668	357	410	114
16	75	63	43	34	31	32	35	90	540	350	372	110
17	75	59	45	34	32	32	41	137	546	354	350	106
18	75	54	46	34	33	30	45	159	564	350	333	108
19	74	52	45	34	32	30	43	175	494	359	333	106
20	72	50	43	33	31	30	40	197	430	350	320	104
21	72	56	46	33	31	30	39	248	405	337	312	102
22	72	62	47	31	30	30	39	350	410	345	324	100
23	70	59	46	32	29	30	41	400	430	333	245	98
24	71	56	44	32	29	30	38	467	456	333	241	97
25	65	53	42	31	30	30	38	558	494	337	255	95
26	68	55	40	30	30	29	38	635	540	341	245	95
27	65	53	38	30	30	29	38	733	558	333	231	93
28	63	52	35	31	30	30	41	755	558	316	228	88
29	61	50	34	31	---	30	42	528	577	308	209	85
30	56	52	34	31	---	30	44	386	602	300	203	82
31	56	---	34	31	---	29	---	300	---	281	200	---
TOTAL	2394	1692	1367	1042	867	933	1064	6862	14333	12213	8675	3723
MEAN	77.2	56.4	44.1	33.6	31.0	30.1	35.5	221	478	394	280	124
MAX	102	63	56	37	33	32	45	755	825	602	410	188
MIN	56	50	34	30	29	29	28	42	235	281	200	82
AC-FT	4750	3360	2710	2070	1720	1850	2110	13610	28430	24220	17210	7380

CAL YR 1978 TOTAL 64151 MEAN 176 MAX 987 MIN 23 AC-FT 127200
WTR YR 1979 TOTAL 55165 MEAN 151 MAX 825 MIN 28 AC-FT 109400

06211000 RED LODGE CREEK ABOVE COONEY RESERVOIR, NEAR BOYD, MT

LOCATION.--Lat 45°26'16", long 109°15'11", in SE¼SE¼ sec.33, T.4 S., R.20 E., Carbon County, Hydrologic Unit 10070006, on right bank 0.6 mi (1.0 km) upstream from Cooney Reservoir, 9 mi (14 km) west of Boyd.

DRAINAGE AREA.--143 mi² (370 km²).

PERIOD OF RECORD.--May 1937 to current year (no winter records for most years).

REVISED RECORDS.--WSP 1729: Drainage area. WSP 2116: 1937(M), 1942(M), 1943(P), 1944(M), 1948(M), 1952(M), 1957(P), 1962(M), 1963(M).

GAGE.--Water-stage recorder. Datum of gage is 4,248.0 ft (1,294.79 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair. Some return flow from lands irrigated by water diverted from Rock Creek and East Rosebud Creek basins. Diversions for irrigation of about 5,100 acres (20.6 km²) above station. Several observations of water temperature were made during the year and are available in files of Helena district office.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,260 ft³/s (64.0 m³/s) June 15, 1967, gage height, 7.00 ft (2.134 m), from rating curve extended above 1,700 ft³/s (48.1 m³/s) on basis of contracted-opening measurement of peak flow; no flow on many days in 1949.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 309 ft³/s (8.75 m³/s) Apr. 18, gage height, 2.63 ft (0.802 m); maximum gage height, 2.67 ft (0.814 m) June 7; minimum discharge recorded, 16 ft³/s (0.36 m³/s) Sept. 10, gage height, 1.28 ft (0.390 m), but have been less during winter period.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	90	45					82	180	153	96	40	35
2	86	44					74	213	122	99	31	33
3	84	41					74	159	105	115	38	34
4	84	39					69	150	138	105	29	30
5	82	36					67	162	138	108	29	30
6	84	36					76	177	153	110	28	30
7	80	38					127	159	243	105	24	29
8	76	36					138	162	210	90	26	27
9	76	33					156	183	153	90	29	19
10	74	25					195	166	127	73	25	18
11	73	24					159	195	120	69	22	20
12	71	24					127	162	122	56	23	31
13	71	26					120	144	150	61	30	29
14	71	27					112	138	150	59	64	31
15	69	28					135	141	138	58	66	33
16	69	29					180	153	103	61	66	32
17	67	31					254	168	94	54	62	30
18	74	30					270	165	122	49	59	29
19	71	25					264	159	165	48	69	28
20	67	22					228	153	159	48	76	28
21	66	26					216	144	138	48	84	27
22	74	29					210	138	135	41	82	26
23	71	33					213	135	122	42	82	26
24	69	35					166	135	110	41	86	25
25	64	34					165	135	105	49	105	25
26	53	34					177	152	112	61	99	33
27	50	33					159	115	99	66	94	33
28	48	34					159	138	117	59	84	32
29	46	34					171	159	108	49	62	31
30	45	34					165	213	101	45	58	30
31	42	---					---	165	---	45	41	---
TOTAL	2149	965					4708	4918	4012	2100	1715	864
MEAN	69.3	32.2					157	159	134	67.7	55.3	28.8
MAX	90	45					270	213	243	115	105	35
MIN	42	22					67	115	94	41	22	18
AC-FT	4260	1910					9340	9750	7960	4170	3400	1710

06211500 WILLOW CREEK NEAR BOYD, MT

LOCATION.--Lat 45°25'20", long 109°13'47", in SW¼SW¼SW¼ sec.2, T.5 S., R.20 E., Carbon County, Hydrologic Unit 10070006, on left bank 0.5 mi (0.8 km) upstream from Cooney Reservoir and 8 mi (13 km) west of Boyd.

DRAINAGE AREA.--53.3 mi² (138.0 km²).

PERIOD OF RECORD.--June 1937 to current year (no winter records for most years).

REVISED RECORDS.--WSP 1729: Drainage area. WSP 2116: 1957, 1962.

GAGE.--Water-stage recorder. Altitude of gage is 4,260 ft (1,300 m), from topographic map. Prior to Apr. 3, 1948, at site 0.5 mi (0.8 km) downstream at different datum.

REMARKS.--Records good. Diversions for irrigation of about 1,800 acres (7.28 km²) above station. Some return flow from lands irrigated by water diverted from Rock Creek basin. Several observations of water temperatures were made during the year and are available in files of Helena district office.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,720 ft³/s (48.7 m³/s) June 15, 1967, gage height, 7.08 ft (2.158 m), from rating curve extended above 400 ft³/s (11.3 m³/s) on basis of slope-area measurement of peak flow; maximum gage height, 7.24 ft (2.207 m) May 29, 1942 (backwater from Cooney Reservoir), site and datum then in use; no flow May 29, 30, 1969.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 150 ft³/s (4.25 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Apr. 19	0545	*184	5.21	*3.48	1.061	Apr. 23	0945	161	4.56	3.40	1.036

Minimum daily discharge, 13 ft³/s (0.37 m³/s) Nov. 10, but may have been less during winter period.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	36	24					24	75	44	49	53	49
2	34	24					24	87	34	52	48	46
3	33	24					24	69	31	51	45	45
4	33	23					24	64	31	49	45	41
5	31	22					24	80	32	51	42	40
6	32	22					25	55	30	51	39	39
7	32	22					29	49	59	53	36	36
8	31	22					56	44	58	55	36	37
9	31	25					61	52	47	57	33	33
10	31	13					78	58	39	56	36	32
11	31	16					57	68	37	47	38	33
12	32	18					44	76	39	42	36	34
13	32	20					41	55	37	47	61	34
14	31	20					41	48	34	44	96	32
15	30	21					48	45	35	41	61	32
16	30	22					83	44	36	43	88	31
17	30	19					92	41	40	41	65	30
18	31	16					137	39	42	41	62	30
19	30	15					164	36	60	39	61	29
20	29	16					116	34	60	39	66	27
21	29	17					98	33	55	37	74	27
22	30	20					116	31	52	35	67	27
23	29	23					117	30	49	41	66	27
24	29	22					75	28	44	40	62	26
25	27	21					71	27	41	39	76	26
26	27	21					89	24	39	53	61	26
27	26	22					80	23	43	65	57	25
28	25	21					63	24	51	62	64	25
29	25	22					80	34	44	62	57	24
30	24	22					74	31	47	53	55	24
31	24	---					---	44	---	60	51	---
TOTAL	925	615					2055	1448	1290	1495	1737	967
MEAN	29.8	20.5					68.5	46.7	43.0	48.2	56.0	32.2
MAX	36	25					164	87	60	65	96	49
MIN	24	13					24	23	30	35	33	24
AC-FT	1830	1220					4080	2870	2560	2970	3450	1920

06212500 RED LODGE CREEK BELOW COONEY RESERVOIR, NEAR BOYD, MT

LOCATION.--Lat 45°27'00", long 109°11'06", in N½NW¼ sec.31, T.4 S., R.21 E., Carbon County, Hydrologic Unit 10070006, on right bank 400 ft (122 m) upstream from Cottonwood Creek, 1 mi (2 km) downstream from Cooney Dam, and 6 mi (10 km) west of Boyd.

DRAINAGE AREA.--210 mi² (544 km²).

PERIOD OF RECORD.--September 1937 to current year.

REVISED RECORDS.--WSP 1309: 1942(M), 1944(M). WSP 2116: 1957(M).

GAGE.--Water-stage recorder. Datum of gage is 4,139.12 ft (1,261.604 m) National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers).

REMARKS.--Records good except those for Dec. 9 to Jan. 15, May 17 to June 19, June 28 to July 17, and July 23 to Aug. 20, which are poor. Some return flow from lands irrigated by water diverted from Rock Creek and East Rosebud Creek basins. Flow completely regulated by Cooney Reservoir (see p.611,612). Diversions for irrigation of about 6,900 acres (27.9 km²) above station. Several observations of water temperature were made during the year and are available in files of Helena district office.

AVERAGE DISCHARGE.--42 years, 102 ft³/s (2.889 m³/s), 73,900 acre-ft/yr (91.1 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,470 ft³/s (98.3 m³/s) June 15, 1967, gage height, 10.17 ft (3.100 m); no flow Oct. 6, 7, 1948, Oct. 7, 8, 12, 16, 17, 1975.

EXTREMES FOR CURRENT YEAR.--Maximum discharge observed, 300 ft³/s (8.50 m³/s) July 12-17, based on dam tender's estimate of release; minimum daily, 45 ft³/s (1.27 m³/s) on many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	215	88	51	49	47	45	225	51	76	185	135	159
2	205	81	51	49	47	45	222	97	76	185	130	138
3	203	83	51	49	47	45	225	184	76	185	120	138
4	201	81	51	49	47	45	222	206	76	185	115	118
5	201	81	51	49	47	45	222	213	76	185	115	99
6	171	81	51	49	47	45	222	227	76	185	115	99
7	116	81	51	49	45	51	227	240	76	185	120	97
8	97	81	50	49	45	79	205	240	76	185	130	97
9	99	83	50	49	45	65	189	242	240	185	170	97
10	99	81	50	49	45	61	191	252	240	230	190	114
11	94	81	50	49	45	62	189	268	240	270	195	142
12	96	79	50	49	45	77	186	268	240	300	205	142
13	96	79	50	49	45	76	186	268	210	300	190	140
14	99	79	50	49	46	65	175	268	145	300	135	140
15	96	79	50	49	47	101	155	225	145	300	86	140
16	96	79	50	48	47	151	134	184	145	300	80	140
17	99	79	50	48	47	173	79	190	145	300	80	132
18	96	77	50	48	47	182	79	190	145	118	80	124
19	96	77	50	48	47	222	79	190	145	134	82	124
20	96	79	50	48	47	237	69	190	144	153	115	124
21	101	79	50	48	47	235	54	190	149	157	159	124
22	94	76	50	48	45	235	52	76	144	159	164	105
23	101	79	50	48	45	232	52	76	144	165	162	93
24	95	79	50	48	45	235	52	76	171	170	173	92
25	96	79	50	48	45	237	51	76	169	175	164	92
26	96	77	50	48	45	232	52	76	191	185	182	90
27	96	77	50	48	45	230	52	76	169	180	182	90
28	96	69	49	48	45	227	51	76	180	165	182	99
29	90	51	49	48	---	227	52	76	180	160	182	106
30	90	51	49	47	---	227	51	76	165	145	182	105
31	88	---	49	47	---	227	---	76	---	140	182	---
TOTAL	3619	2326	1553	1501	1287	4416	4000	5150	4514	6171	4522	3500
MEAN	117	77.5	50.1	48.4	46.0	142	133	166	150	199	146	117
MAX	215	88	51	49	47	237	227	268	240	300	205	159
MIN	88	51	49	47	45	45	51	51	76	118	80	90
AC-FT	7180	4610	3080	2980	2550	8760	7930	10220	8950	12240	8970	6940

CAL YR 1978 TOTAL 41172.5 MEAN 113 MAX 597 MIN 5.2 AC-FT 81670
WTR YR 1979 TOTAL 42557.0 MEAN 117 MAX 300 MIN 45 AC-FT 84410

06214500 YELLOWSTONE RIVER AT BILLINGS, MT

LOCATION.--Lat 45°47'48", long 108°28'12", in NE¼NE¼ sec. 34, T.1 N., R.26 E., Yellowstone County, Hydrologic Unit 10070007, on left bank 30 ft (9.1 m) downstream from bridge on U.S. Highway 87, 1 mi (2 km) northeast of Billings, 10 mi (16 km) upstream from Pryor Creek, and at mile 346.0 (556.7 km).

DRAINAGE AREA.--11,795 mi^2 (30,549 km^2). Area at site used Jan. 10, 1963, to Dec. 2, 1967, 11,783 mi^2 (30,518 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1904 to December 1905 (gage heights only January to March, December 1905), August 1928 to current year. Monthly discharge only for some periods, published in WSP 1309. Published as "near Billings" 1904-5.

REVISED RECORDS.--WRD MT 1968: 1967 (M). WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 3,081.36 ft (939.199 m) National Geodetic Vertical Datum of 1929. May 1904 to December 1905, nonrecording gage at bridge 30 ft (9.1 m) upstream at different datum. Aug. 24, 1928, to June 30, 1932, nonrecording gage at bridge 30 ft (9.1 m) upstream at datum 2.0 ft (0.61 m) higher. July 1, 1932, to Oct. 12, 1937, water-stage recorder at old diversion dam 3 mi (5 km) upstream at different datum. Oct. 13, 1937, to Jan. 9, 1963, water-stage recorder at present site at datum 2.0 ft (0.61 m) higher. Jan. 10, 1963, to Dec. 2, 1967, water-stage recorder at city of Billings Water Department intake, 1.8 mi (2.9 km) upstream at datum 3,096.09 ft (943.688 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good except those for winter period, which are poor. Diversions for irrigation of about 350,000 acres (1,420 km^2) above station.

AVERAGE DISCHARGE.--51 years (1928-79), 7,043 ft^3/s (199.5 m^3/s), 5,103,000 acre-ft/yr (6.29 km^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 69,500 ft^3/s (1,970 m^3/s), June 19, 1974; gage height, 14.60 ft (4.450 m); maximum gage height, 14.76 ft (4.499 m) June 16, 1967, present datum, from floodmark; minimum discharge, 430 ft^3/s (12.2 m^3/s) Dec. 12, 1932.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 35,200 ft^3/s (997 m^3/s) June 15, gage height, 10.04 ft (3.060 m); minimum, 1,300 ft^3/s (36.8 m^3/s) Dec. 31.

CORRECTION.--The following mean daily discharge figures, in ft^3/s, supersede those figures published in 1978 WRD-MT-1: December 30 (2,200), 31 (2,100), January 1 (2,000), 2 (2,000), 3 (2,100), 4 (2,200), 5 (2,400), 6 (2,600), 7 (3,000), 8 (2,600), 9 (2,600), 10 (2,700), 11 (2,700), 12 (2,900), 13 (2,800), 14 (2,700), 15 (2,600), 16 (2,500).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6860	4670	3900	1400	1700	3200	4450	6450	16700	25100	6240	5050
2	662[illegible]	4600	3500	1600	1700	3000	4400	6890	14100	24200	5770	5000
3	65[illegible]	4690	2800	1900	1800	3000	4280	6950	12700	21600	5440	4870
4	6390	4690	2600	2200	1900	3200	4210	6680	12800	20100	5150	4550
5	6190	4550	2500	2300	2100	3500	4190	6830	16400	18900	5020	4330
6	6130	4430	2400	2300	2200	3900	4190	7530	21900	17800	4770	4190
7	5960	4380	2500	2400	2200	4500	4420	8430	28000	16600	4380	3910
8	5770	4280	2700	2400	2100	6000	4870	8270	24400	15700	4190	3750
9	5630	4300	2900	2400	2200	8000	5150	7630	19100	15000	4120	3660
10	5500	4100	3200	2600	2100	7800	5340	7070	15900	14100	4020	3600
11	5360	3800	3200	2700	2300	7600	5710	6530	14700	13200	3980	3620
12	5280	3600	3300	2700	2500	7800	5420	6070	16400	12500	4090	3710
13	5230	3600	3500	2800	2400	8000	5020	5880	21000	12000	4140	3680
14	5230	3500	3500	2800	2400	7600	4900	5740	28500	11500	5280	3620
15	5150	3500	3000	2700	2500	7400	4790	5930	34400	11000	6500	3570
16	5150	3500	2300	2700	2600	7600	4790	6530	30800	10400	6680	3510
17	5230	3500	2500	2900	2600	7600	5150	8110	25700	9770	6160	3360
18	5260	3600	3000	3000	2500	7000	5550	10000	24800	9180	5690	3150
19	5260	3400	3200	3100	2800	5850	6240	11100	27700	8700	5690	2950
20	5200	2100	3300	3000	3100	5360	6480	11800	30100	8200	5740	2810
21	5100	2000	3500	3000	3000	5050	6020	12500	29000	7910	5820	2740
22	5060	2600	3650	2900	3100	4900	5630	13200	26800	7720	5850	2720
23	4980	3700	3650	2700	3300	4900	5520	15700	25500	7560	5800	2660
24	4900	4500	3650	2700	3500	4620	5660	18500	24600	7440	5440	2620
25	4820	4300	3400	2500	3700	4840	5710	20900	24500	7190	5800	2570
26	4790	4230	3000	2400	3900	4820	5660	22500	25600	7130	6130	2570
27	4740	4330	2600	2400	3700	4670	5580	25200	26600	7160	5930	2510
28	4690	4190	2200	2300	3300	4550	5360	28600	26500	7750	5990	2530
29	4690	4120	1800	2200	---	4470	5420	32900	25600	8370	5800	2550
30	4720	4050	1400	2100	---	4570	5930	28000	25300	7160	5580	2550
31	4740	---	1300	1800	---	4520	---	20700	---	6710	5260	---
TOTAL	167130	116810	89950	76900	73200	169820	156040	389120	696100	377650	166450	102910
MEAN	5391	3894	2902	2481	2614	5478	5201	12550	23200	12180	5369	3430
MAX	6860	4690	3900	3100	3900	8000	6480	32900	34400	25100	6680	5050
MIN	4690	2000	1300	1400	1700	3000	4190	5740	12700	6710	3980	2510
AC-FT	331500	231700	178400	152500	145200	336800	309500	771800	1381000	749100	330200	204100

CAL YR 1978 TOTAL 3375690 MEAN 9248 MAX 44900 MIN 1300 AC-FT 6696000
WTR YR 1979 TOTAL 2582080 MEAN 7074 MAX 34400 MIN 1300 AC-FT 5122000

06214500 YELLOWSTONE RIVER AT BILLINGS, MT--Continued
(National Stream Quality Accounting Network)

WATER-QUALITY RECORDS

LOCATION.--Samples for NASQAN station collected at "south" bridge on Billings Boulevard, 5.9 mi (9.5 km) upstream from gaging station. Samples for daily specific conductance collected at Billings Water Department Intake, 1.8 mi (2.9 km) upstream from gaging station.

PERIOD OF RECORD.--Water years 1950-58, 1963 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: December 1950 to September 1958, July 1963 to current year.
WATER TEMPERATURES: December 1950 to September 1958, July 1963 to current year.
SUSPENDED-SEDIMENT DISCHARGE: October 1976 to current year.

REMARKS.--Water temperatures taken at highway bridge December 1950 to September 1958, at water department intake July 1963 to September 1968 and October 1970 to current year, at both sites October 1968 to September 1970. Sediment concentrations affected by construction during period Dec. 11 to Mar. 6. Flow affected by ice Nov. 9-25, Dec. 1 to Mar. 18.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,210 micromhos Feb. 2, 1951; minimum daily, 111 micromhos June 9, 1973.
WATER TEMPERATURES: Maximum, 26.5°C July 24, 1955; minimum, 0.0°C on many days during winter periods.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 4,260 mg/L May 18, 1978; minimum daily mean, 1 mg/L on Oct. 27, 30, 1976, Jan. 11, 12, 1978.
SEDIMENT LOAD: Maximum daily, 493,000 tons (447,000 megagrams) May 19, 1978; minimum daily, 11 tons (10 megagrams) Jan. 12, 1978.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 687 micromhos Jan. 2; minimum daily, 118 micromhos June 16.
WATER TEMPERATURES: Maximum daily, 22.0°C July 21-23, Aug. 19; minimum daily, 0.0°C on many days during November to February.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 1,440 mg/L Mar. 13; minimum daily mean, 4 mg/L Oct. 29.
SEDIMENT LOAD: Maximum daily, 81,300 tons (73,800 megagrams) June 15; minimum daily, 24 tons (22 megagrams) Jan. 31.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPECIFIC CONDUCTANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE (DEG C) (00010)	TURBIDITY (NTU) (00076)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)
OCT										
02...	1300	6590	1	369	8.6	14.5	12.0	2.0	10.5	108
NOV										
02...	1130	4620	0	419	8.4	15.0	5.0	.20	11.8	103
DEC										
01...	1000	3900	84	475	8.3	-10.0	.0	1.0	12.7	97
JAN										
02...	1100	1600	83	715	8.0	-20.0	.0	.60	12.4	94
FEB										
01...	1100	1700	2	542	8.0	-5.0	.0	.90	11.3	87
MAR										
05...	1230	3500	1	592	8.1	10.0	1.5	5.8	11.9	95
APR										
04...	1330	4230	70	605	8.5	2.0	5.5	4.8	11.8	105
MAY										
03...	1030	6950	0	425	7.9	13.0	9.0	1.6	10.0	96
JUN										
07...	1300	29000	51	145	7.7	13.0	10.5	63	9.1	91
JUL										
10...	1600	13800	1	217	8.4	35.0	22.0	6.7	8.7	112
30...	1330	7070	1	340	8.3	27.0	21.0	28	8.3	103
SEP										
04...	1200	4450	1	400	8.5	29.5	19.5	5.6	10.2	124

06214500 YELLOWSOTNE RIVER AT BILLINGS, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)
OCT										
02...	120	1400	140	21	35	13	24	.9	2.6	120
NOV										
02...	160	1700	160	42	40	15	28	1.0	3.2	120
DEC										
01...	K27	36	170	39	43	15	32	1.1	3.3	130
JAN										
02...	K1900	230	270	89	68	24	50	1.3	3.8	180
FEB										
01...	120	K27	200	55	54	17	35	1.1	3.8	150
MAR										
05...	K24	880	200	61	51	18	41	1.3	4.3	140
APR										
04...	K23	49	190	43	46	19	50	1.6	3.4	150
MAY										
03...	230	--	150	33	40	13	27	.9	2.7	120
JUN										
07...	600	470	53	10	15	3.8	9.0	.5	1.4	43
JUL										
10...	--	--	74	8	19	6.4	12	.6	1.9	66
30...	300	270	120	22	32	10	21	.8	2.9	99
SEP										
04...	200	320	140	23	36	13	23	.8	--	120

DATE	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)
OCT									
02...	69	5.9	.4	12	232	234	.32	4130	.07
NOV									
02...	90	7.3	.4	14	264	270	.36	3290	.14
DEC									
01...	99	7.5	.4	16	295	294	.40	3110	.43
JAN									
02...	170	11	.4	17	439	452	.60	1900	.54
FEB									
01...	120	8.6	.5	18	341	347	.46	1570	.57
MAR									
05...	140	9.8	.5	16	357	365	.49	3370	.51
APR									
04...	130	10	.5	13	373	362	.51	4260	.22
MAY									
03...	73	6.5	.4	11	252	246	.34	4730	.18
JUN									
07...	20	2.1	.2	9.8	94	87	.13	7360	.09
JUL									
10...	29	3.2	.3	12	125	123	.17	4660	.05
30...	63	5.2	.4	13	191	207	.26	3650	.11
SEP									
04...	68	5.6	.4	10	234	--	E.32	2810	.05

06214500 YELLOWSTONE RIVER AT BILLINGS, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITROGEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITROGEN, KJELDAHL, TOTAL (MG/L AS N) (00625)	NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)	PHOSPHORUS, DISSOLVED (MG/L AS P) (00666)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CARBON, ORGANIC DISSOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUSPENDED TOTAL (MG/L AS C) (00689)
OCT 02...	.01	.29	.30	.20	.02	.01	--	2.9	.3
NOV 02...	.01	.44	.45	.15	.00	.00	2.1	--	--
DEC 01...	.00	.49	.49	.17	.01	.00	2.0	--	--
JAN 02...	.02	.19	.21	.26	.00	.00	--	2.0	.4
FEB 01...	.08	.11	.19	.17	.03	.03	1.7	--	--
MAR 05...	.05	.17	.22	.17	.04	.03	2.0	--	--
APR 04...	.01	.19	.20	.21	.01	.00	--	2.2	.4
MAY 03...	.03	.49	.52	.29	.04	.01	4.4	--	--
JUN 07...	.04	.41	.45	.27	.19	.03	--	7.5	--
JUL 10...	.00	.23	.23	.19	.03	.01	2.1	--	--
30...	.03	.31	.34	.17	.08	.03	3.9	--	--
SEP 04...	.15	.53	.68	.19	.40	.02	5.8	--	--

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DISSOLVED (UG/L AS AS) (01000)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA) (01007)	BARIUM, DISSOLVED (UG/L AS BA) (01005)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD) (01027)	CADMIUM DISSOLVED (UG/L AS CD) (01025)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)
OCT 02...	1300	8	8	0	0	6	3	0	0
JAN 02...	1100	10	9	0	0	0	0	0	0
APR 04...	1330	8	9	0	50	1	<1	10	0
JUN 07...	1300	--	4	--	0	--	1	--	0

DATE	COBALT, TOTAL RECOVERABLE (UG/L AS CO) (01037)	COBALT, DISSOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)	COPPER, DISSOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)	IRON, DISSOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOVERABLE (UG/L AS PB) (01051)	LEAD, DISSOLVED (UG/L AS PB) (01049)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)
OCT 02...	0	0	8	1	330	20	25	17	10
JAN 02...	2	2	3	1	90	10	4	1	0
APR 04...	3	<3	6	1	590	<10	21	0	30
JUN 07...	--	0	--	1	--	70	--	0	--

06214500 YELLOWSTONE RIVER AT BILLINGS, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOVERABLE (UG/L AS HG) (71900)	MERCURY DISSOLVED (UG/L AS HG) (71890)	SELENIUM, TOTAL (UG/L AS SE) (01147)	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	SILVER, TOTAL RECOVERABLE (UG/L AS AG) (01077)	SILVER, DISSOLVED (UG/L AS AG) (01075)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)	ZINC, DISSOLVED (UG/L AS ZN) (01090)
OCT									
02...	10	.0	.0	0	0	0	0	10	10
JAN									
02...	0	.0	.0	2	2	1	0	20	10
APR									
04...	4	.0	.1	2	2	0	0	10	<3
JUN									
07...	0	--	.0	--	0	--	0	--	20

PESTICIDE ANALYSES, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	PCB, TOTAL (UG/L) (39516)	PCB, TOTAL IN BOTTOM MATERIAL (UG/KG) (39519)	ALDRIN, TOTAL (UG/L) (39330)	ALDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG) (39333)	CHLORDANE, TOTAL (UG/L) (39350)	CHLORDANE, TOTAL IN BOTTOM MATERIAL (UG/KG) (39351)	DDD, TOTAL (UG/L) (39360)	DDD, TOTAL IN BOTTOM MATERIAL (UG/KG) (39363)	DDE, TOTAL (UG/L) (39365)	DDE, TOTAL IN BOTTOM MATERIAL (UG/KG) (39368)
NOV											
02...	1130	ND	--	ND	--	ND	--	ND	--	ND	--
MAR											
05...	1230	ND	--	ND	--	ND	--	ND	--	ND	--
MAY											
03...	1030	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SEP											
04...	1200	ND	--	ND	--	ND	--	ND	--	ND	--

DATE	DDT, TOTAL (UG/L) (39370)	DDT, TOTAL IN BOTTOM MATERIAL (UG/KG) (39373)	DIAZINON, TOTAL (UG/L) (39570)	DIAZINON, TOTAL IN BOTTOM MATERIAL (UG/KG) (39571)	DIELDRIN TOTAL (UG/L) (39380)	DIELDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG) (39383)	ENDRIN, TOTAL (UG/L) (39390)	ENDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG) (39393)	ETHION, TOTAL (UG/L) (39398)	ETHION, TOTAL IN BOTTOM MATERIAL (UG/KG) (39399)
NOV										
02...	ND	--	ND	--	ND	--	ND	--	ND	--
MAR										
05...	ND	--	ND	--	ND	--	ND	--	ND	--
MAY										
03...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SEP										
04...	ND	--	ND	--	ND	--	ND	--	ND	--

DATE	HEPTACHLOR, TOTAL (UG/L) (39410)	HEPTACHLOR, TOTAL IN BOTTOM MATERIAL (UG/KG) (39413)	HEPTACHLOR EPOXIDE TOTAL (UG/L) (39420)	HEPTACHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG) (39423)	LINDANE TOTAL (UG/L) (39340)	LINDANE TOTAL IN BOTTOM MATERIAL (UG/KG) (39343)	MALATHION, TOTAL (UG/L) (39530)	MALATHION, TOTAL IN BOTTOM MATERIAL (UG/KG) (39531)	METHOXYCHLOR, TOTAL (UG/L) (39480)	METHOXYCHLOR, TOT. IN BOTTOM MATL. (UG/KG) (39481)
NOV										
02...	ND	--	ND	--	ND	--	ND	--	ND	--
MAR										
05...	ND	--	ND	--	ND	--	ND	--	ND	--
MAY										
03...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SEP										
04...	ND	--	ND	--	ND	--	ND	--	ND	--

06214500 YELLOWSTONE RIVER AT BILLINGS, MT--Continued

PESTICIDE ANALYSES, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	METHYL PARA-THION, TOTAL (UG/L) (39600)	METHYL PARA-THION, TOT. IN BOTTOM MATL. (UG/KG) (39601)	METHYL TRI-THION, TOTAL (UG/L) (39790)	METHYL TRI-THION, TOT. IN BOTTOM MATL. (UG/KG) (39791)	PARA-THION, TOTAL (UG/L) (39540)	PARA-THION, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39541)	TOX-APHENE, TOTAL (UG/L) (39400)	TOXA-PHENE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39403)	TOTAL TRI-THION (UG/L) (39786)	TRI-THION, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39787)
NOV										
02...	ND	--	ND	--	ND	--	ND	--	ND	--
MAR										
05...	ND	--	ND	--	ND	--	ND	--	ND	--
MAY										
03...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SEP										
04...	ND	--	ND	--	ND	--	ND	--	ND	--

RADIOCHEMICAL ANALYSES, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT) (80030)	GROSS ALPHA, DIS-SOLVED (PCI/L AS U-NAT) (01515)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT) (80040)	GROSS ALPHA, SUSP. TOTAL (PCI/L AS U-NAT) (01516)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137) (03515)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137) (03516)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90) (80050)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/YT-90) (80060)	RADIUM 226, DIS-SOLVED, RADON METHOD (PCI/L) (09511)	URANIUM DIS-SOLVED, EXTRAC-TION (UG/L) (80020)
JUN											
07...	1300	<1.2	<.8	12	8.2	2.0	6.6	1.8	5.9	.06	.27
SEP											
04...	1200	<3.1	<2.1	<.4	<.5	3.7	.5	3.4	.5	.07	2.1

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	392	439	474	---	561		---	469	186	149	348	379
2	393	443	488	687	567		---	496	210	148	350	383
3	399	444	506	649	558		---	440	218	---	---	384
4	400	444	549	626	553		---	434	225	---	---	387
5	404	444	519	576	535		---	---	206	---	---	392
6	411	444	497	557	531		---	---	---	---	---	393
7	414	442	526	544	525		---	---	---	192	---	402
8	418	442	559	541	527		---	395	138	196	---	410
9	420	441	603	542	526		---	373	162	201	---	419
10	420	439	589	535	---		---	392	180	---	---	415
11	423	434	594	528	512		---	408	---	214	381	412
12	429	469	563	521	509		---	---	186	---	381	418
13	430	520	518	517	509		---	---	---	---	---	429
14	436	512	515	506	504		---	432	---	235	407	434
15	437	510	512	516	477		---	423	---	236	401	442
16	439	508	514	512	473		---	414	118	242	372	443
17	435	463	516	505	525		---	---	130	251	354	444
18	434	473	534	502	562		---	338	136	251	363	448
19	435	---	514	492	533		---	301	141	251	370	453
20	442	553	488	492	---		510	280	170	256	378	463
21	447	595	501	---	---		493	259	188	265	372	471
22	441	568	518	488	---		489	249	189	275	377	---
23	440	---	514	498	518		494	231	174	276	360	492
24	445	468	498	496	518		497	221	172	279	362	490
25	448	454	492	507	537		500	176	170	280	380	485
26	439	461	487	505	542		496	175	157	288	---	491
27	438	446	508	506	529		492	---	144	302	382	493
28	---	453	518	513	534		499	158	140	399	378	---
29	436	452	524	512	---		489	145	142	403	381	---
30	452	469	615	519	---		486	167	144	335	379	---
31	454	---	643	535	---		---	188	---	---	377	---
MEAN	428	473	529	532	528		495	315	168	258	374	434

WTR YR 1979 MEAN 416 MAX 687 MIN 118

6214500 YELLOWSTONE RIVER AT BILLINGS, MT--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13.0	5.0	.5	---	.0		---	12.5	9.0	19.0	20.0	16.0
2	12.5	5.0	.5	.5	.0		---	11.0	---	17.0	20.0	17.0
3	10.5	5.0	.5	.5	.0		---	9.0	10.5	---	---	18.0
4	11.5	8.0	.5	1.0	.5		---	11.5	15.0	---	---	19.0
5	10.0	6.5	.5	.0	.5		---	---	16.0	---	---	19.0
6	10.0	5.0	.5	.0	1.0		---	---	---	---	---	19.0
7	9.5	5.0	1.0	.0	.5		---	---	---	17.0	---	19.0
8	10.0	7.0	.5	2.0	.5		---	11.0	12.0	18.0	---	20.0
9	11.0	6.5	.5	.5	.5		---	9.5	10.0	17.5	---	21.0
10	11.0	1.0	.0	.0	---		---	9.0	12.0	---	---	19.0
11	12.0	1.0	.0	.0	.5		---	11.0	12.0	20.0	19.0	17.0
12	12.0	2.0	.5	.0	1.0		---	---	16.0	---	21.0	16.0
13	11.5	1.5	.0	.0	1.0		---	---	17.0	---	---	16.0
14	7.5	.5	.5	.0	1.0		---	12.0	17.0	18.5	18.0	16.0
15	8.5	.5	.5	.5	1.0		---	13.0	15.0	18.5	18.0	16.0
16	9.0	.5	.5	.5	.5		---	14.5	14.0	18.5	20.0	16.0
17	10.5	.5	.5	1.0	1.0		---	---	14.5	19.0	20.0	16.0
18	10.5	.5	.5	.5	1.0		---	14.0	15.5	21.0	21.0	16.0
19	11.0	---	.5	.5	1.0		---	17.0	13.5	21.0	22.0	18.0
20	10.5	.5	.5	.5	---		10.0	15.0	13.0	21.0	20.0	18.0
21	10.0	.5	.5	---	---		13.0	14.0	14.0	22.0	20.0	17.0
22	9.0	.0	.5	.5	---		10.0	15.0	15.0	22.0	20.0	18.0
23	8.5	---	.5	.5	1.0		10.0	15.0	13.0	22.0	19.0	16.0
24	9.0	1.0	1.0	.5	.0		10.0	15.0	15.0	21.0	19.0	17.0
25	10.0	1.0	1.0	.5	.0		8.0	15.0	16.0	21.0	19.0	16.5
26	8.0	.5	1.0	.0	.5		10.0	14.0	16.0	20.0	---	16.5
27	8.0	.5	1.0	.0	.5		10.0	---	17.0	20.0	19.0	15.0
28	---	.5	1.0	.0	1.0		11.0	14.0	16.0	20.0	18.0	---
29	8.0	.5	.0	.5	---		11.0	10.0	17.0	20.0	18.0	---
30	6.0	.5	.0	.0	---		11.5	9.0	17.0	20.0	20.0	---
31	4.5	---	.0	.5	---		---	9.0	---	---	19.0	---
MEAN	10.0	2.5	.5	.5	.5		10.5	12.5	14.5	19.5	19.5	17.5

WTR YR 1979 MEAN 9.0 MAX 22.0 MIN .0

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPERATURE (DEG C) (00010)	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)	SED. SUSP. FALL DIAM. % FINER THAN .125 MM (70343)	SED. SUSP. FALL DIAM. % FINER THAN .250 MM (70344)	SED. SUSP. FALL DIAM. % FINER THAN .500 MM (70345)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT										
02...	1300	12.0	6590	21	374	--	--	--	--	74
NOV										
02...	1130	5.0	4620	7	87	--	--	--	--	74
APR										
04...	1330	5.5	4230	42	480	--	--	--	--	65
MAY										
03...	1030	9.0	6950	135	2530	--	--	--	--	62
JUN										
07...	1300	10.5	29000	430	33700	55	77	95	100	--
JUL										
30...	1330	21.0	7070	103	1970	--	--	--	--	81
SEP										
04...	1200	19.5	4450	20	240	--	--	--	--	67

06214500 YELLOWSTONE RIVER AT BILLINGS, MT--Continued

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	20	370	8	101	60	632	78	265	7	32	31	268
2	11	197	30	373	16	151	95	410	20	92	17	136
3	12	211	19	241	35	265	79	405	24	117	16	130
4	11	190	12	152	20	140	136	808	18	92	27	233
5	9	150	12	147	12	81	52	323	39	221	30	283
6	7	116	9	108	16	104	27	168	8	48	24	253
7	8	129	6	71	26	175	28	181	34	202	130	1580
8	7	109	5	58	34	248	11	71	28	159	840	13600
9	7	106	17	197	29	227	23	149	41	244	1200	25900
10	7	104	16	177	37	320	45	316	31	176	515	10800
11	6	87	13	133	77	665	27	197	37	230	560	11500
12	40	570	36	350	59	526	39	284	21	142	995	21000
13	5	71	17	165	36	340	15	113	9	58	1440	31100
14	7	99	15	142	26	246	17	129	34	220	1190	24400
15	5	70	14	132	25	202	30	219	31	209	1170	23400
16	7	97	14	132	53	329	9	66	20	140	1340	27500
17	6	85	13	123	45	304	36	282	13	91	970	19900
18	8	114	12	117	60	486	20	162	21	142	400	7560
19	6	85	13	119	108	933	23	193	34	257	314	4960
20	10	140	16	91	102	909	14	113	56	469	205	2970
21	7	96	35	189	32	302	29	235	36	292	185	2520
22	6	82	22	154	23	227	41	321	29	243	338	4470
23	6	81	23	230	38	374	35	255	84	748	290	3840
24	6	79	65	790	45	443	27	197	39	369	115	1430
25	8	104	95	1100	77	707	69	466	28	280	245	3200
26	6	78	39	445	96	778	63	408	34	358	125	1630
27	6	77	53	620	81	569	5	32	43	430	80	1010
28	5	63	26	294	86	511	8	50	58	517	94	1150
29	4	51	24	267	53	258	7	42	---	---	60	724
30	6	76	45	492	78	295	23	130	---	---	69	851
31	6	77	---	---	62	218	5	24	---	---	59	720
TOTAL	---	3964	---	7710	---	11965	---	7014	---	6578	---	249020

06214500 YELLOWSTONE RIVER AT BILLINGS, MT--Continued

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	108	1300	80	1390	166	7480	117	7930	245	4130	27	368
2	67	796	494	9190	173	6590	94	6140	56	872	33	445
3	50	578	265	4970	118	4050	89	5190	54	793	35	460
4	29	330	297	5360	104	3590	147	7980	32	445	34	418
5	45	509	340	6270	181	8010	90	4590	40	542	25	292
6	124	1400	306	6220	196	11600	86	4130	38	489	21	238
7	84	1600	346	7880	176	13300	74	3320	27	319	18	190
8	80	1050	255	5690	174	11500	77	3260	30	339	15	152
9	101	1400	399	8220	105	5410	73	2960	30	334	17	168
10	156	2250	282	5380	85	3650	54	2060	32	347	20	194
11	115	1770	252	4440	105	4170	55	1960	30	322	22	215
12	205	3000	203	3330	184	8150	60	2030	35	387	21	210
13	293	3970	156	2480	203	11500	56	1810	59	660	21	209
14	97	1260	176	2730	460	35400	32	994	64	912	19	186
15	123	1590	134	2150	875	81300	38	1130	88	1540	16	154
16	76	983	155	2730	320	26600	33	927	74	1330	22	208
17	186	2590	385	8430	159	11000	28	739	86	1430	17	154
18	184	2760	391	10600	230	15400	39	967	80	1230	14	119
19	480	8090	760	22800	550	41100	30	705	61	937	20	159
20	290	5070	750	23900	527	42800	25	553	62	961	18	137
21	155	2520	380	12800	469	36700	39	833	81	1270	20	148
22	99	1500	485	17300	372	26900	36	750	81	1280	25	184
23	278	4140	560	23700	197	13600	46	939	74	1160	21	151
24	86	1310	615	30700	186	12400	36	723	53	778	25	177
25	194	2990	625	35300	131	8670	35	679	54	846	20	139
26	83	1270	630	38300	144	9950	35	674	58	960	21	146
27	128	1930	910	61900	158	11300	56	1080	53	849	20	136
28	56	810	940	72600	180	12900	53	1110	71	1150	20	137
29	60	878	480	42600	120	8290	139	3140	62	971	16	110
30	154	2470	315	23800	153	10500	175	3380	38	573	17	117
31	---	---	203	11300	---	---	385	6980	37	525	---	---
TOTAL	---	61534	---	514460	---	503810	---	79663	---	28681	---	6121

TOTAL LOAD FOR YEAR: 1480520 TONS.

06214500 YELLOWSTONE RIVER AT BILLINGS, MT--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

PHYTOPLANKTON

DATE	NOV 2,78	JAN 2,79	MAR 5,79	MAY 3,79	JUL 30,79	SEP 4,79
TIME	1130	1100	1230	1030	1330	1200
TOTAL CELLS/ML	940	360	1400	1700	940	2500
DIVERSITY: DIVISION	1.1	0.7	0.6	1.6	1.0	1.4
.CLASS	1.1	0.7	0.6	1.6	1.0	1.4
..ORDER	1.2	1.0	0.7	2.3	1.4	1.5
...FAMILY	2.2	3.2	3.1	3.1	2.2	2.6
....GENUS	2.2	3.2	3.4	3.2	2.2	3.2

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)												
.CHLOROPHYCEAE												
..CHLOROCOCCALES												
...HYDRODICTYACEAE												
....PEDIASTRUM	--	-	--	-	--	-	--	-	100	11	--	-
...OOCYSTACEAE												
....ANKISTRODESMUS	--	-	31	9	--	-	42	2	--	-	70	3
...SCENEDESMACEAE												
....ACTINASTRUM	--	-	--	-	--	-	56	3	--	-	--	-
....SCENEDESMUS	--	-	--	-	--	-	--	-	420#	44	180	7
..VOLVOCALES												
...CHLAMYDOMONADACEAE												
....CHLAMYDOMONAS	--	-	--	-	--	-	130	7	--	-	*	0
...PHACOTACEAE												
....PTEROMONAS	--	-	--	-	70	5	--	-	--	-	--	-
..ZYGNEMATALES												
...DESMIDIACEAE												
....CLOSTERIUM	14	2	--	-	--	-	--	-	--	-	--	-
....COSMARIUM	--	-	--	-	--	-	--	-	--	-	18	1
CHRYSOPHYTA												
.BACILLARIOPHYCEAE												
..CENTRALES												
...COSCINODISCACEAE												
....CYCLOTELLA	29	3	23	6	--	-	99	6	100	11	44	2
....MELOSIRA	--	-	--	-	14	1	--	-	--	-	--	-
..PENNALES												
...ACHNANTHACEAE												
....ACHNANTHES	29	3	23	6	--	-	--	-	--	-	18	1
....COCCONEIS	--	-	--	-	42	3	--	-	--	-	53	2
....RHOICOSPHENIA	--	-	--	-	28	2	--	-	--	-	18	1
...CYMBELLACEAE												
....CYMBELLA	130	14	31	9	210#	15	--	-	160#	17	200	8
....EPITHEMIA	--	-	--	-	42	3	--	-	--	-	53	2
...DIATOMACEAE												
....DIATOMA	29	3	31	9	130	9	--	-	--	-	170	7
...FRAGILARIACEAE												
....FRAGILARIA	--	-	--	-	210#	15	--	-	--	-	*	0
....SYNEDRA	--	-	39	11	42	3	14	1	52	6	200	8
...GOMPHONEMATACEAE												
....GOMPHONEMA	58	6	23	6	180	13	71	4	--	-	96	4
...NAVICULACEAE												
....NAVICULA	58	6	93#	26	200	14	56	3	100	11	340	14
....PLAGIOTROPIS	--	-	--	-	--	-	--	-	--	-	*	0
...NITZSCHIACEAE												
....NITZSCHIA	58	6	46	13	98	7	320#	19	--	-	*	0
...SURIRELLACEAE												
....SURIRELLA	--	-	8	2	28	2	300#	17	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)												
.CYANOPHYCEAE												
..CHROOCOCCALES												
...CHROOCOCCACEAE												
....ANACYSTIS	--	-	15	4	--	-	200	12	--	-	--	-
..HORMOGONALES												
...OSCILLATORIACEAE												
....LYNGBYA	--	-	--	-	84	6	--	-	--	-	860#	34
....OSCILLATORIA	540#	57	--	-	--	-	350#	21	--	-	180	7
EUGLENOPHYTA (EUGLENOIDS)												
.EUGLENOPHYCEAE												
..EUGLENALES												
...EUGLENACEAE												
....EUGLENA	--	-	--	-	--	-	42	2	--	-	--	-
....TRACHELOMONAS	--	-	--	-	--	-	28	2	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

06214500 YELLOWSTONE RIVER AT BILLINGS, MT--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

PERIPHYTON

DATE	TIME	LENGTH OF EXPO-SURE (DAYS) (00022)	PERI-PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M (00573)	PERI-PHYTON BIOMASS ASH WEIGHT G/SQ M (00572)	CHLOR-A PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2) (70957)	CHLOR-B PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2) (70958)	BIOMASS CHLORO-PHYLL RATIO PERI-PHYTON (UNITS) (70950)
MAY							
03...	1030	16	15.7	14.7	5.78	.330	173
JUL							
30...	1330	20	.511	.433	.087	.015	897
SEP							
04...	1200	36	1.34	1.10	9.43	2.31	25.5

DATE	TIME	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	WEATHER (WMO CODE NUMBER) (00041)
SEP									
04...	0900	410	8.3	20.0	18.0	7.7	91	678	1
04...	1000	412	8.4	24.0	18.0	8.3	98	678	1
04...	1100	--	--	--	18.5	9.2	110	--	--
04...	1200	400	8.5	29.5	19.5	10.2	124	678	1
04...	1300	--	--	28.5	19.5	10.8	132	677	1
04...	1400	410	8.8	28.0	20.0	11.3	139	677	1
04...	1500	--	--	29.0	20.0	11.9	146	677	1
04...	1600	401	8.6	27.5	20.0	12.2	150	676	1
04...	1700	--	--	27.0	20.5	12.1	150	676	1
04...	1800	400	8.8	24.0	20.0	11.8	145	677	10
04...	1900	--	--	22.0	20.0	11.1	136	678	10
04...	2000	--	--	--	20.0	10.3	127	678	--
04...	2100	--	--	--	20.0	9.6	118	--	--
04...	2200	--	--	--	20.0	8.9	109	--	--
04...	2300	--	--	--	19.5	8.4	102	--	--
04...	2400	--	--	--	19.0	8.0	96	680	--
05...	0100	--	--	--	19.0	7.6	91	--	--
05...	0200	--	--	--	18.5	7.4	88	--	--
05...	0300	--	--	--	18.5	7.3	87	--	--
05...	0400	--	--	--	18.0	7.2	84	--	--
05...	0500	--	--	--	17.5	7.2	84	682	--
05...	0600	430	8.3	7.0	17.5	7.2	83	683	1
05...	0700	--	--	--	17.5	7.2	83	--	--
05...	0800	425	8.2	10.5	17.0	7.3	84	684	1
05...	0900	425	8.3	12.5	17.0	8.0	92	684	1

06216000 PRYOR CREEK AT PRYOR, MT

LOCATION.--Lat 45°26'06", long 108°32'01", in NE¼NW¼NE¼ sec.5, T.5 S., R.26 E., Big Horn County, Hydrologic Unit 10070008, on left bank at Pryor, 2 mi (3 km) downstream from Lost Creek.

DRAINAGE AREA.--117 mi² (303 km²).

PERIOD OF RECORD.--June 1921 to September 1924 (no winter records), October 1966 to current year. Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 4,007.35 ft (1,221.440 m) National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to Oct. 14, 1966, nonrecording gage at approximately same site at different datum.

REMARKS.--Records good except those for July 29 to Aug. 23, which are poor. Diversions for irrigation of about 1,100 acres (4.45 km²) above station.

AVERAGE DISCHARGE.--13 years (1966-79), 42.6 ft³/s (1.206 m³/s), 30,860 acre-ft/yr (38.1 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,280 ft³/s (64.6 m³/s) May 19, 1978, gage height, 8.88 ft (2.707 m), from floodmark, from rating curve extended above 410 ft³/s (11.6 m³/s) on basis of contracted-opening measurement of peak flow; minimum observed, 3.4 ft³/s (0.10 m³/s) June 24, 1921, gage height, 0.86 ft (0.262 m), site and datum then in use.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 198 ft³/s (5.61 m³/s) Mar. 8, gage height, 4.61 ft (1.405 m); maximum gage height, 4.65 ft (1.417 m) Feb. 15 (backwater from ice); minimum discharge, 18 ft³/s (0.51 m³/s) July 24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	55	53	57	51	41	55	56	54	50	30	20	34
2	55	52	51	50	46	68	55	52	50	31	20	32
3	55	52	57	49	47	63	55	50	49	31	20	29
4	54	51	57	48	47	62	54	50	47	30	20	29
5	56	51	55	46	47	66	54	50	47	31	20	33
6	55	52	52	48	46	88	55	50	47	30	20	33
7	55	52	49	46	48	120	61	49	58	27	20	33
8	55	52	50	47	47	141	58	49	48	28	20	34
9	56	58	55	46	47	84	59	51	45	28	21	33
10	55	55	54	47	48	72	63	52	39	27	21	33
11	56	53	53	48	48	76	67	50	38	26	22	35
12	56	55	54	47	49	83	64	50	35	27	22	35
13	55	55	53	46	50	81	60	49	34	25	23	33
14	55	54	54	44	52	70	58	48	33	25	24	33
15	56	53	54	48	55	70	58	48	32	25	29	32
16	56	54	54	47	54	74	59	47	33	25	30	31
17	56	55	54	46	56	76	60	47	33	28	30	30
18	56	51	53	47	53	69	61	53	33	24	30	30
19	55	49	53	48	52	65	63	48	35	20	30	31
20	55	53	52	48	52	63	58	47	35	20	31	29
21	55	53	52	48	50	62	56	46	46	19	32	30
22	56	55	53	48	49	61	55	46	47	20	35	31
23	55	56	54	47	51	59	55	46	46	20	34	33
24	55	55	54	47	46	59	56	45	44	19	36	33
25	56	55	54	47	46	66	54	45	43	20	37	33
26	55	55	52	47	50	59	54	45	42	28	37	33
27	54	55	53	44	54	59	56	44	30	22	37	34
28	55	57	49	45	57	56	52	44	31	21	36	35
29	56	56	42	42	---	57	52	54	34	20	35	34
30	55	57	48	43	---	59	52	70	31	20	34	34
31	52	---	50	44	---	56	---	52	---	20	34	---
TOTAL	1711	1614	1632	1449	1388	2199	1720	1531	1215	767	860	972
MEAN	55.2	53.8	52.6	46.7	49.6	70.9	57.3	49.4	40.5	24.7	27.7	32.4
MAX	56	58	57	51	57	141	67	70	58	31	37	35
MIN	52	49	42	42	41	55	52	44	30	19	20	29
AC-FT	3390	3200	3240	2870	2750	4360	3410	3040	2410	1520	1710	1930

CAL YR 1978 TOTAL 23843 MEAN 65.3 MAX 1700 MIN 23 AC-FT 47290
WTR YR 1979 TOTAL 17058 MEAN 46.7 MAX 141 MIN 19 AC-FT 33830

06216900 PRYOR CREEK NEAR HUNTLEY, MT

LOCATION.--Lat 45°49'19", long 108°17'23", in SE¼NW¼ sec.19, T.1 N., R.28 E., Yellowstone County, Hydrologic Unit 10070008, on left bank 250 ft (76 m) upstream from county bridge on Indian Creek road, 1.6 mi (2.6 km) north of Interstate 90, and 4.9 mi (7.9 km) south of Huntley.

DRAINAGE AREA.--582 mi² (1,507 km²).

PERIOD OF RECORD.--October 1978 to September 1979.

GAGE.--Water-stage recorder. Altitude of gage is 3,140 ft (957 m), from topographic map.

REMARKS.--Records fair except those for winter periods, which are poor. Diversions for irrigation of about 3,200 acres (13.0 km²) above station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge undetermined but probably occurred on Mar. 12, 1979; maximum gage height, 7.54 ft (2.298 m) Mar. 12, 1979 (ice jam); minimum discharge, 29.4 ft³/s (0.83 m³/s) July 24, 1979.

EXTREMES FOR CURRENT YEAR.--Maximum discharge undetermined, probably occurred on Mar. 12; maximum gage height, 7.54 ft (2.298 m) Mar. 12 (ice jam); minimum discharge, 29.4 ft³/s (0.83 m³/s) July 24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	120	114	110	74	80	130	242	177	191	77	71	51
2	122	114	90	80	90	125	225	195	158	67	67	53
3	119	114	100	85	95	120	218	188	142	69	56	55
4	119	114	94	80	100	120	214	171	133	67	50	50
5	117	112	85	80	100	130	202	171	125	69	50	47
6	117	109	75	80	100	140	199	167	119	68	48	45
7	119	109	76	85	95	160	202	164	125	66	45	47
8	119	110	80	90	105	200	229	158	177	64	41	48
9	117	105	85	90	115	260	238	154	154	60	38	48
10	119	100	90	92	110	300	233	158	122	60	36	47
11	119	98	100	95	115	800	290	167	112	60	38	47
12	117	105	95	100	120	2000	324	158	101	60	39	50
13	114	110	100	95	115	1300	290	158	97	58	36	53
14	117	110	105	90	110	900	242	151	90	55	42	55
15	117	115	105	80	105	820	222	142	85	51	47	55
16	114	120	100	85	95	846	214	139	83	50	53	53
17	117	115	100	90	105	883	206	139	85	48	56	53
18	117	110	100	95	115	671	210	136	87	45	55	51
19	117	110	100	95	120	469	214	138	94	42	56	50
20	117	105	105	94	120	370	225	136	97	42	56	48
21	117	105	110	95	115	339	214	139	99	38	56	50
22	114	105	110	90	115	334	199	140	101	37	56	50
23	112	110	110	85	110	319	188	140	101	36	58	48
24	114	110	105	90	130	319	188	142	101	37	53	47
25	119	115	100	90	145	349	184	139	97	36	55	47
26	114	115	100	85	145	344	191	139	85	36	60	47
27	114	125	96	85	140	290	191	142	87	45	58	47
28	114	135	90	80	135	263	195	142	83	67	56	47
29	114	130	80	75	---	250	184	142	77	77	56	47
30	114	125	75	75	---	246	174	210	77	181	56	47
31	114	---	70	75	---	246	---	250	---	98	55	---
TOTAL	3624	3374	2941	2680	3145	14043	6587	4890	3285	1864	1607	1483
MEAN	117	112	94.9	86.5	112	453	218	158	110	60.1	51.8	49.4
MAX	120	135	110	100	145	2000	324	250	191	181	71	55
MIN	112	98	70	74	80	120	174	136	77	36	36	45
AC-FT	7190	6690	5830	5320	6240	27850	12990	9700	6520	3700	3190	2940

WTR YR 1979 TOTAL 49483 MEAN 136 MAX 2000 MIN 36 AC-FT 98150

06217500 YELLOWSTONE RIVER AT HUNTLEY, MT

LOCATION.--Lat 46°54'15", long 108°19'01", in N½SW¼ sec.24, T.2 N., R.27 E., Yellowstone County, Hydrologic Unit 10070007, at bridge on State Highway 312, 0.1 mi (0.2 km) downstream from Twelve Mile Creek, and 0.7 mi (1.1 km) northwest of Huntley.

DRAINAGE AREA.--12,840 mi² (33,256 km²).

PERIOD OF RECORD.--Water years 1951-52, 1971, 1972 to current year.

REMARKS.--Records of discharge are estimated from Yellowstone River at Billings (station 06214500). Flow affected by diversions for irrigation upstream from station.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	TUR-BID-ITY (JTU) (00070)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)
OCT											
13...	1400	5230	0	467	8.7	15.0	10.0	2	--	12.7	124
31...	1400	4740	2	471	8.6	13.0	6.0	2	--	14.3	127
NOV											
15...	0945	3500	0	586	8.3	-15.0	.0	1	--	13.0	98
30...	1500	4050	03	520	8.1	1.0	.0	1	--	12.5	96
DEC											
11...	0900	3200	2	640	7.7	.0	.0	5	--	10.9	83
29...	1400	1800	0	661	8.1	-15.0	.0	3	--	12.7	96
JAN											
11...	0800	2700	1	562	8.2	-10.0	.0	1	--	12.2	93
31...	1130	1800	0	630	8.1	-12.0	.0	--	--	12.6	96
FEB											
15...	1300	2500	0	518	8.0	-15.0	1.0	10	--	12.8	98
28...	0855	3300	40	654	8.5	-5.0	.0	7	--	11.5	88
MAR											
22...	0900	4900	1	649	8.0	2.0	5.5	50	--	11.0	97
29...	1300	4470	2	787	8.5	12.0	5.0	22	--	11.7	103
APR											
18...	0800	5550	2	650	8.2	8.0	12.0	13	--	8.9	93
MAY											
04...	1130	6600	3	500	8.2	14.0	11.5	--	13	9.8	100
16...	0915	6530	1	455	8.3	21.0	15.0	--	18	8.8	98
JUN											
08...	1200	24400	1	177	7.9	17.0	10.5	--	39	10.0	99
28...	1240	20500	0	165	8.1	30.0	18.0	--	20	8.7	101
JUL											
18...	0815	9100	0	280	8.6	17.0	19.5	--	5.6	7.9	94
31...	1200	6710	0	370	8.5	34.0	22.0	--	5.8	7.5	95
AUG											
22...	0815	5050	2	378	7.9	19.5	19.0	--	4.7	8.0	95
SEP											
05...	1230	4330	0	430	8.6	24.0	19.5	--	3.9	9.7	116

06217500 YELLOWSTONE RIVER AT HUNTLEY, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	COLI-FORM, TOTAL, IMMED. (COLS. PER 100 ML) (31501)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)
OCT											
13...	24	7000	1700	--	--	--	--	--	--	--	--
31...	14	8600	770	180	47	43	17	35	1.1	3.4	130
NOV											
15...	8	2400	560	--	--	--	--	--	--	--	150
30...	7	6800	2000	180	52	45	17	37	1.2	3.3	130
DEC											
11...	19	E800	K27	--	--	--	--	--	--	--	150
29...	17	K1700	210	230	72	55	23	49	1.4	3.9	160
JAN											
11...	--	11000	700	--	--	--	--	--	--	--	150
31...	8	1700	140	--	--	--	--	--	--	--	--
FEB											
15...	--	990	97	--	--	--	--	--	--	--	120
28...	24	2000	340	210	78	52	19	41	1.2	3.7	130
MAR											
22...	16	2600	420	--	--	--	--	--	--	--	180
29...	9	K160	K65	270	100	65	27	70	1.8	3.7	170
APR											
18...	12	2200	320	--	--	--	--	--	--	--	160
MAY											
04...	24	770	190	180	47	43	17	36	1.2	2.9	130
16...	15	2100	360	--	--	--	--	--	--	--	110
JUN											
08...	12	1000	250	62	15	16	5.3	9.7	.5	1.4	47
28...	12	K9000	240	--	--	--	--	--	--	--	47
JUL											
18...	9	1300	440	--	--	--	--	--	--	2.5	81
31...	23	--	1200	130	28	30	13	27	1.0	3.1	100
AUG											
22...	15	--	880	--	--	--	--	--	--	--	110
SEP											
05...	4	130	120	160	37	38	15	28	1.0	2.7	120

DATE	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	SOLIDS, SUSP. TOTAL, RESIDUE AT 110 DEG. C (MG/L) (70299)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)
OCT										
13...	--	--	--	--	292	--	.40	4120	4	.11
31...	120	8.5	.4	12	310	318	.42	3970	12	.16
NOV										
15...	--	--	--	--	377	--	.51	3560	12	.40
30...	120	6.4	.4	15	318	324	.43	3460	16	.79
DEC										
11...	--	--	--	--	395	--	.54	3410	17	.50
29...	150	9.8	.5	17	422	405	.57	2050	19	.55
JAN										
11...	--	--	--	--	371	--	.50	2710	4	.58
31...	--	--	--	--	--	--	--	--	--	--
FEB										
15...	--	--	--	--	324	--	.44	2190	40	.57
28...	160	11	.5	16	387	362	.53	3450	21	.54
MAR										
22...	--	--	--	--	573	--	.78	7580	142	.60
29...	220	10	.5	12	513	511	.70	6190	62	.46
APR										
18...	--	--	--	--	412	--	.56	6170	61	.16
MAY										
04...	110	7.5	.4	11	311	306	.42	5610	81	.16
16...	--	--	--	--	267	--	.36	4710	54	.07
JUN										
08...	30	2.3	.2	9.6	104	103	.14	6850	132	.12
28...	--	--	--	--	94	--	.13	6730	74	.10
JUL										
18...	51	4.7	.3	--	163	--	.22	4040	27	.04
31...	70	5.5	.4	13	237	222	.32	4290	254	.18
AUG										
22...	--	--	--	--	235	--	E.32	3710	49	.20
SEP										
05...	84	6.3	.5	9.9	246	257	E.33	2880	10	.07

06217500 YELLOWSTONE RIVER AT HUNTLEY, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, KJEL-DAHL, TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C) (00689)	OIL AND GREASE (MG/L) (00550)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
OCT										
13...	.01	.40	.41	.04	2.8	--	--	--	--	--
31...	.00	.15	.15	.02	2.4	--	--	--	190	<10
NOV										
15...	.03	.33	.36	.03	3.9	--	--	0	--	--
30...	.06	.31	.37	.04	2.1	--	--	--	200	10
DEC										
11...	.01	.39	.40	.07	3.1	--	--	--	--	--
29...	.04	.43	.47	.04	2.5	--	--	--	230	0
JAN										
11...	.08	.34	.42	.06	2.6	--	--	--	--	--
31...	--	--	--	--	1.6	--	--	--	--	--
FEB										
15...	.17	.28	.45	.12	3.1	--	--	--	--	--
28...	.15	.19	.34	.03	5.1	4.4	.4	--	250	20
MAR										
22...	.16	.41	.57	.10	5.3	--	--	--	--	--
29...	.11	.20	.31	.04	3.3	--	--	--	210	10
APR										
16...	.07	.12	.19	.03	7.6	--	--	--	--	--
MAY										
04...	.09	.30	.39	.07	6.1	--	--	--	150	10
16...	.03	.34	.37	.06	6.9	--	--	--	--	--
JUN										
08...	.03	.75	.78	.09	4.5	--	--	--	50	50
28...	.02	.10	.12	.12	3.7	--	--	--	--	--
JUL										
18...	.05	.36	.41	.02	3.5	2.7	.4	--	120	--
31...	.02	.60	.62	.07	7.7	--	--	--	130	10
AUG										
22...	.03	.63	.66	.05	4.8	--	--	--	--	--
SEP										
05...	.04	.50	.54	.01	9.2	--	--	--	160	10

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPER-ATURE (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT						
13...	1400	10.0	5230	5	71	88
FEB						
15...	1300	1.0	2500	90	608	--
28...	0855	.0	3300	15	134	--
MAR						
29...	1300	5.0	4470	69	833	90
MAY						
04...	1130	11.5	6660	111	2000	68
JUN						
08...	1200	10.5	24400	245	16100	55
JUL						
18...	0815	19.5	9180	39	967	70
31...	1200	22.0	6710	242	4380	97
SEP						
05...	1230	19.5	4330	13	152	89

06217500 YELLOWSTONE RIVER AT HUNTLEY, MT--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

PHYTOPLANKTON

DATE	MAY 4,79
TIME	1130
TOTAL CELLS/ML	2300
DIVERSITY: DIVISION	0.3
.CLASS	0.3
..ORDER	1.2
...FAMILY	2.4
....GENUS	2.4

ORGANISM	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)		
.CHLOROPHYCEAE		
..CHLOROCOCCALES		
...OOCYSTACEAE		
....ANKISTRODESMUS	21	1
....KIRCHNERIELLA	41	2
..VOLVOCALES		
...CHLAMYDOMONADACEAE		
....CHLAMYDOMONAS	41	2
CHRYSOPHYTA		
.BACILLARIOPHYCEAE		
..CENTRALES		
...COSCINODISCACEAE		
....CYCLOTELLA	850#	38
..PENNALES		
...CYMBELLACEAE		
....CYMBELLA	410#	18
...FRAGILARIACEAE		
....SYNEDRA	41	2
...GOMPHONEMATACEAE		
....GOMPHONEMA	100	5
...NAVICULACEAE		
....NAVICULA	350#	16
...NITZSCHIACEAE		
....NITZSCHIA	390#	17

NOTE: # - DOMINANT ORGANISM, EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

455936108102200 HUNTLEY PROJECT DRAIN NO. 7 NEAR WORDEN, MT

LOCATION.--Lat 45°59'36", long 108°10'22", in NW¼NW¼SW¼ sec.19, T.3 N., R.29 E., Yellowstone County, Hydrologic Unit 10070007, at downstream side of bridge on farm road, 0.25 mi (0.04 km) upstream from mouth, and 2.2 mi (3.5 km) northwest of Worden.

PERIOD OF RECORD.--Water years 1977 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)
OCT											
17...	1150	3.0	3	1070	7.7	12.5	11.0	6.6	68	310	30
DEC											
04...	1130	1.6	70	1100	7.6	2.0	2.0	10.6	86	320	0
12...	1215	.77	1	1130	8.0	.5	4.0	14.7	123	320	0
JAN											
11...	0925	.78	1	1220	8.2	-4.0	3.0	11.8	98	330	0
MAR											
08...	0845	.70	2	1120	7.7	1.5	2.5	10.2	63	330	13
19...	1100	1.5	1	1170	8.0	5.5	5.5	15.3	134	340	4
APR											
17...	0820	1.0	0	1220	7.9	8.0	6.5	12.3	113	340	0
MAY											
16...	0745	.07	1	1220	7.8	13.0	8.0	10.4	98	350	0
JUN											
20...	0815	11	3	325	7.4	15.0	11.0	8.6	86	150	61
JUL											
18...	1045	6.0	0	478	8.6	21.0	20.0	10.0	120	160	5
AUG											
22...	1030	5.9	2	648	7.7	25.5	17.0	7.6	89	220	5
SEP											
13...	1035	11	1	690	7.8	12.5	14.0	7.0	74	210	9

DATE	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)
OCT										
17...	73	32	130	3.2	3.6	340	250	15	.8	23
DEC										
04...	72	34	140	3.4	4.1	340	260	15	.6	23
12...	72	34	150	3.7	4.0	350	260	13	.7	23
JAN										
11...	75	35	160	3.8	4.4	360	300	17	.5	23
MAR										
08...	79	33	130	3.1	4.4	320	280	15	.6	17
19...	80	35	150	3.5	5.9	340	270	17	.6	18
APR										
17...	73	38	160	3.8	3.1	360	260	18	.7	22
MAY										
16...	78	37	150	3.5	3.5	350	280	16	.6	19
JUN										
20...	36	14	46	1.6	2.4	87	58	4.5	.3	11
JUL										
18...	38	17	48	1.6	2.7	160	97	6.5	.4	13
AUG										
22...	50	22	63	1.9	3.0	210	140	8.2	.5	6.6
SEP										
13...	49	21	52	1.6	3.8	200	140	8.8	.5	15

455936108102200 HUNTLEY PROJECT DRAIN NO. 7 NEAR WORDEN, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N) (00607)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P) (00671)
OCT										
17...	708	717	.96	5.73	1.9	.04	.68	.72	.04	.02
DEC										
04...	731	758	.99	3.16	2.2	.02	.86	.88	.03	.05
12...	750	814	1.02	1.56	2.2	.02	.57	.59	.04	.03
JAN										
11...	814	841	1.11	1.71	2.2	.11	.52	.63	.06	.00
MAR										
08...	730	760	.99	1.38	2.0	.09	.43	.52	.09	.01
19...	784	791	1.07	3.10	2.2	.25	.61	.86	.10	.06
APR										
17...	817	801	1.11	2.21	2.1	.03	.50	.53	.00	.02
MAY										
16...	809	803	1.10	.15	1.6	.09	.57	.66	.04	.05
JUN										
20...	221	226	.30	6.56	.28	.01	.31	.32	.03	.03
JUL										
18...	313	320	.43	5.07	.33	.00	.39	.39	.01	.01
AUG										
22...	423	422	.58	6.74	.65	.01	.55	.56	.04	.03
SEP										
13...	412	413	.56	12.2	.52	.00	.55	.55	.00	.05

06217750 FLY CREEK AT POMPEYS PILLAR, MT

LOCATION.--Lat 45°59'33", long 107°57'07", in SW¼NW¼SE¼ sec.23, T.3 N., R.30 E., Yellowstone County, Hydrologic Unit 10070007, on right bank at county bridge at Pompeys Pillar and 0.5 mi (0.8 km) upstream from mouth.

DRAINAGE AREA.--285 mi² (738 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1968 to current year.

GAGE.--Nonrecording gage. Datum of gage is 2,852.8 ft (869.55 m) National Geodetic Vertical Datum of 1929 (levels by Montana State Highway Commission). Oct. 1, 1968, to May 1974, nonrecording gage at present site but different datum. May 1974 to July 16, 1978, nonrecording gage at bridge 3 mi (5 km) upstream at different datum.

REMARKS.--Water-discharge records fair except those for winter period, which are poor. Flow affected by waste water from irrigation ditches and by return flow from irrigated areas upstream. Discharge for the period May 1974 to July 16, 1978, was computed by combining the flow of Fly Creek, as determined at gage site then in use, and the flow of Lost Boy Creek.

AVERAGE DISCHARGE.--11 years, 40.4 ft³/s (1.144 m³/s), 29,270 acre-ft/yr (36.1 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,300 ft³/s (292 m³/s) May 19, 1978, gage height, 15.94 ft (4.859 m), previous site and datum, from floodmark, from rating curve extended above 1,800 ft³/s (50.9 m³/s) on basis of slope-area measurement of peak flow; minimum daily, 1.7 ft³/s (0.048 m³/s) Dec. 20, 1968.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,790 ft³/s (50.7 m³/s) Mar. 13, gage height observed, 10.45 ft (3.185 m); minimum daily, 4.0 ft³/s (0.11 m³/s) Dec. 30, result of freezeup.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	15	9.0	4.5	7.0	10	54	24	64	53	69	75
2	18	17	8.5	5.0	8.0	11	44	24	64	48	60	75
3	16	12	9.0	5.2	9.0	12	39	24	61	46	58	75
4	20	12	10	5.4	9.5	11	40	24	52	56	56	73
5	21	9.0	9.0	5.6	9.5	12	41	26	51	60	49	70
6	18	9.0	7.5	6.3	9.5	12	43	24	52	51	51	67
7	16	9.5	7.5	5.6	9.5	221	39	23	66	49	55	63
8	17	12	8.0	7.2	9.0	1460	42	18	64	32	46	61
9	18	9.5	8.5	5.0	7.6	1720	44	20	61	32	41	56
10	14	9.5	9.5	5.6	7.2	1170	46	21	54	32	32	64
11	13	11	14	6.8	7.0	853	49	22	66	33	26	70
12	15	12	13	6.2	7.0	847	69	22	60	34	30	81
13	14	15	11	6.0	9.0	1420	52	23	54	34	35	70
14	15	16	10	5.8	8.5	1270	29	22	73	35	41	76
15	18	11	12	6.0	7.0	898	32	16	78	40	43	81
16	17	6.4	11	6.2	7.0	706	38	46	56	46	46	88
17	13	7.6	11	6.3	9.8	696	46	93	48	48	46	86
18	17	7.0	9.5	6.3	11	634	43	34	58	33	54	86
19	15	6.5	6.4	6.0	11	304	28	34	61	25	57	85
20	13	6.5	9.5	7.2	10	188	33	33	63	34	60	88
21	16	7.0	6.0	7.2	9.2	152	33	29	72	44	60	78
22	15	7.5	8.0	7.6	9.0	129	30	24	75	44	57	78
23	14	9.0	9.0	7.6	8.5	114	29	27	70	44	57	75
24	9.5	9.5	6.0	8.0	8.5	106	31	26	75	47	58	67
25	11	10	8.4	7.6	8.4	106	33	25	72	46	66	64
26	12	8.4	11	7.0	8.4	108	29	21	53	44	75	63
27	13	9.5	9.5	7.0	8.5	81	28	28	54	54	76	61
28	13	10	5.6	7.0	9.0	70	19	27	54	61	85	61
29	15	10	4.5	7.0	---	73	18	54	53	64	75	60
30	14	9.5	4.0	7.5	---	66	25	64	47	70	70	69
31	14	---	4.2	7.0	---	60	---	66	---	73	73	---
TOTAL	471.5	305.9	274.1	198.7	242.6	13540	1126	966	1831	1412	1705	2166
MEAN	15.2	10.2	8.84	6.41	8.66	437	37.5	31.2	61.0	45.5	55.0	72.2
MAX	21	17	14	8.0	11	1720	69	93	78	73	85	88
MIN	9.5	6.5	4.0	4.5	7.0	10	18	16	47	25	26	56
AC-FT	935	607	544	394	481	26860	2230	1920	3630	2800	3380	4300

CAL YR 1978 TOTAL 25591.1 MEAN 70.1 MAX 7960 MIN 3.8 AC-FT 50760
WTR YR 1979 TOTAL 24236.8 MEAN 66.4 MAX 1720 MIN 4.0 AC-FT 48060

06217750 FLY CREEK AT POMPEYS PILLAR, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1969 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1968 to current year.
WATER TEMPERATURES: October 1968 to current year.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 4,250 micromhos Apr. 6, 1977; minimum daily, 262 micromhos Feb. 14, 1971.
WATER TEMPERATURES: Maximum daily, 26.5°C July 3, 1975; minimum daily, 0.0°C on many days during winter periods most years.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 4,160 micromhos Apr. 12; minimum daily, 647 micromhos Sept. 20.
WATER TEMPERATURES: Maximum daily, 24.5°C July 24; minimum daily observed, 1.0°C on several days during November to February.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPECIFIC CONDUCTANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE (DEG C) (00010)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)
OCT 16...	0950	19	2	2780	8.2	6.0	--	800	430	140	110	380
NOV 02...	0930	15	0	2970	8.0	--	4.5	870	510	150	120	400
DEC 12...	0930	14	2	3680	8.0	--	.5	1100	660	160	160	510
JAN 08...	0910	9.0	0	3450	7.7	--	.0	1000	580	170	140	490
FEB 06...	1005	10	0	3110	8.0	--	1.0	920	520	170	120	440
MAR 12...	1130	807	2	1430	7.9	--	--	400	310	66	57	160
APR 09...	1330	54	0	3970	8.3	--	12.0	980	810	160	140	570
MAY 07...	•1430	24	2	3740	8.1	--	13.0	1100	750	150	180	500
JUN 12...	1030	63	0	1230	7.9	23.0	17.0	340	180	61	45	150
JUL 05...	1240	45	0	1135	8.4	28.0	20.0	330	150	68	40	120
AUG 14...	1400	45	2	1175	8.3	24.0	19.0	360	150	74	42	120
SEP 14...	1215	76	0	910	8.4	22.0	15.0	300	110	64	35	84

06217750 FLY CREEK AT POMPEYS PILLAR, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)
OCT												
16...	5.8	5.5	370	1300	29	.7	--	--	--	--	.30	.02
NOV												
02...	5.9	6.3	360	1400	27	.5	12	2330	3.17	94.4	.30	.01
DEC												
12...	6.8	8.1	400	1700	37	.4	13	2830	3.85	107	.55	.02
JAN												
08...	6.7	8.1	420	1600	38	.4	16	2720	3.70	70.5	.73	.02
FEB												
06...	6.3	6.7	400	1300	31	.4	15	2330	3.17	62.9	.73	.01
MAR												
12...	3.5	10	94	600	10	.2	7.3	970	1.32	2110	.61	.08
APR												
09...	7.9	7.0	170	1900	40	.4	7.0	2930	3.98	427	.12	.01
MAY												
07...	6.5	6.4	370	1700	45	.4	6.3	2810	3.82	182	.11	.02
JUN												
12...	3.6	3.4	160	470	10	.3	11	849	1.15	144	.54	--
JUL												
03...	2.9	4.2	180	410	9.4	.4	12	773	1.05	93.9	.10	.04
AUG												
14...	2.8	4.4	210	400	12	.5	14	794	1.08	96.5	.23	.03
SEP												
14...	2.1	4.1	190	290	8.8	.5	12	614	E.84	126	.26	.00

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2450	2600	---	---	2230	---	3620	3950	1660	1060	891	818
2	2600	2750	---	---	---	2790	3600	4010	1700	1050	831	679
3	2570	2710	---	---	2670	---	3600	3890	1740	1060	878	740
4	2430	2530	---	---	1980	2700	3630	3710	1520	1080	1000	779
6	2440	2870	---	---	1780	2800	3960	3720	1180	1060	945	868
7	2530	2840	1970	---	2720	---	3990	3730	1180	1170	1070	1020
8	2520	2230	3020	---	3170	988	3680	3760	1140	1150	932	923
9	2490	2790	3100	---	2220	2870	3850	3620	1190	1150	840	970
10	2650	2670	3110	---	3170	2860	3720	3820	1260	---	1170	811
11	2610	2670	3000	---	---	1350	3700	3680	1440	1130	1260	849
12	2300	2600	3170	---	---	1340	4160	3750	1120	1010	1080	800
13	2330	2780	3120	---	1790	1040	3850	3620	1040	1010	984	908
14	2200	2530	3550	---	---	1090	3830	3710	1030	956	990	760
15	2450	2170	3560	---	---	1100	4100	3600	988	971	1150	850
16	2490	2400	3560	---	---	1200	4050	1320	983	978	1080	744
17	2510	2800	3060	---	---	1220	4020	1400	937	1240	995	767
18	2720	2800	3200	---	---	1220	4080	2710	901	1290	982	801
19	2720	2450	3210	3020	---	1780	4000	2720	1020	1300	965	741
20	2730	2470	3160	2930	---	2530	4000	2710	842	1200	907	647
21	2580	3120	3330	---	3120	2540	3980	1700	665	1180	982	752
22	2770	---	3380	---	2660	2630	3990	2620	734	1140	851	697
23	2760	---	3030	---	3100	2820	3720	3100	885	1220	908	710
24	2630	2910	3020	2520	2680	2520	3850	2630	890	1220	913	725
25	2680	2890	3310	2940	---	2700	3830	2750	870	1140	909	860
26	2590	3530	2920	---	---	2700	3810	2580	1010	991	786	908
27	2540	3100	3310	---	3120	3170	3740	2220	950	968	812	730
28	2230	2760	3170	---	2690	3200	3630	2460	969	893	673	780
29	2670	3090	---	---	---	3400	3630	2420	967	925	761	894
30	2650	3080	---	---	---	3620	3660	2410	1110	761	850	957
31	---	---	---	---	---	3700	---	2400	---	829	812	---
MEAN	2550	2730	3150	2850	2590	2300	3840	3050	1100	1070	945	814

WTR YR 1979 MEAN 2160 MAX 4160 MIN 647

06217750 FLY CREEK AT POMPEYS PILLAR, MT--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13.5	8.5	---	---	1.5	---	6.5	13.0	13.0	20.5	22.5	18.0
2	14.0	6.5	---	---	---	3.5	6.5	9.5	15.0	18.5	23.0	19.0
3	13.5	9.5	---	---	2.0	---	6.5	13.5	17.5	18.0	24.0	20.5
4	13.5	8.5	---	---	2.0	4.0	5.0	13.5	19.0	22.0	22.0	18.0
5	13.0	9.5	---	---	2.5	---	6.0	10.5	19.0	21.0	22.5	19.5
6	13.5	7.5	---	---	2.5	4.5	6.5	13.0	18.5	20.0	23.5	20.0
7	9.5	9.5	1.0	---	3.5	---	7.5	14.0	15.5	22.0	21.5	19.5
8	14.0	10.0	2.0	---	2.5	1.0	10.0	10.5	13.0	20.5	21.5	18.0
9	14.0	6.5	1.5	---	4.5	2.0	12.5	13.0	16.5	23.0	21.0	17.5
10	14.0	2.5	3.0	---	3.5	1.5	10.0	15.0	17.0	---	17.0	17.5
11	13.5	2.0	4.0	---	---	2.0	8.0	11.0	17.0	21.5	17.5	16.0
12	12.0	3.0	2.5	---	---	2.5	9.0	16.0	18.0	21.0	16.5	16.5
13	11.0	2.5	2.5	---	5.0	1.0	7.5	16.0	21.0	20.0	20.5	18.0
14	9.0	3.5	2.0	---	---	5.0	9.0	17.0	17.5	21.5	20.0	14.0
15	12.0	2.0	1.0	---	---	5.0	12.0	20.5	17.0	20.5	21.5	17.5
16	13.0	1.5	1.5	---	---	5.0	13.0	19.0	19.0	19.5	21.0	18.0
17	10.5	2.0	1.5	---	---	5.0	15.0	19.0	17.5	21.0	23.0	14.0
18	12.0	2.0	2.0	---	---	4.5	13.5	16.5	19.0	20.0	20.0	14.5
19	13.0	2.0	2.0	1.5	---	4.0	13.5	17.0	15.0	20.5	19.5	17.0
20	12.0	2.5	2.0	1.5	---	4.0	13.5	15.5	15.5	19.5	20.0	18.0
21	9.5	1.0	2.0	---	2.5	4.0	13.5	19.5	15.0	20.5	21.5	14.5
22	10.5	---	1.5	---	2.5	6.5	12.0	15.0	19.0	22.0	18.0	18.0
23	10.0	---	1.5	---	3.0	5.0	10.0	18.0	19.0	23.0	22.5	17.5
24	10.0	2.0	1.5	3.0	3.0	6.5	11.0	17.0	18.5	24.5	22.0	18.5
25	10.0	2.5	1.5	2.5	---	5.0	12.5	19.5	17.5	19.5	20.0	14.5
26	10.0	1.0	2.0	---	---	5.0	11.0	17.5	21.0	19.0	20.5	14.5
27	10.5	3.0	1.0	---	1.0	5.0	14.5	23.0	21.5	19.5	20.5	17.5
28	8.5	3.5	1.5	---	3.0	5.0	12.0	16.0	19.5	22.0	21.5	15.5
29	10.0	3.0	---	---	---	4.5	13.5	13.5	20.0	22.0	21.5	14.5
30	9.5	2.5	---	---	---	6.0	15.5	13.0	20.0	20.0	21.5	15.5
31	---	---	---	---	---	6.0	---	14.5	---	23.5	18.5	---
MEAN	11.5	4.5	2.0	2.0	3.0	4.0	10.5	15.5	17.5	21.0	21.0	17.0

WTR YR 1979 MEAN 12.5 MAX 24.5 MIN 1.0

06279500 BIGHORN RIVER AT KANE, WY

LOCATION.--Lat 44°45'31", long 108°10'51", in NW¼NE¼SW¼ sec.9, T.55 N., R.94 W., Big Horn County, on right bank 180 ft (55 m) upstream from Bighorn Canyon National Recreation Area boundary, 0.5 mi (0.8 km) upstream from normal high-water line of Bighorn Lake at elevation 3,660 ft (1,116 m), 1.3 mi (2.1 km) upstream from Five Springs Creek, and 5.9 mi (9.5 km) south of Kane.

DRAINAGE AREA.--15,765 mi² (40,831 km²). Area at sites used prior to May 17, 1956, 15,846 mi² (41,041 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1928 to current year.

REVISED RECORDS.--WSP 1309: 1929(M). WSP 1509: 1929. WSP 1709: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 3,660 ft (1,116 m), from topographic map. Aug. 29, 1928, to Apr. 25, 1932, nonrecording gage, and Apr. 25, 1932, to May 16, 1956, water-stage recorder, at site 12.5 mi (20.1 km) downstream at different datum.

REMARKS.--Water-discharge records good except those for November to June, which are poor. No gage-height record Feb. 16, 17, Mar. 16 to May 21, June 6, 7, 14-27. Some regulation by Boysen Reservoir (station 06258900) since October 1951. Diversions for irrigation of about 376,000 acres (1,522 km²) above station.

AVERAGE DISCHARGE.--51 years, 2,288 ft³/s (64.80 m³/s), 1,658,000 acre-ft/yr (2.044 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 25,200 ft³/s (714 m³/s) June 16, 1935, gage height, 11.10 ft (3.383 m), site and datum then in use; minimum daily, 179 ft³/s (5.07 m³/s) July 22, 1934.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1923, 14.8 ft (4.51 m) Sept. 30, 1923, site and datum then in use April 1932 to May 1956.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 7,190 ft³/s (204 m³/s) May 30, gage height, 4.95 ft (1.509 m); maximum gage height, 6.65 ft (2.027 m) Nov. 15 (backwater from ice); minimum daily discharge, 820 ft³/s (23.2 m³/s) July 19.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2980	2460	1930	1880	1520	1750	2400	2850	3690	1930	1030	1240
2	3020	2480	1900	1860	1500	1720	2600	2850	3540	1780	1000	1260
3	3000	2470	1820	1850	1450	1700	2800	2900	3090	1500	985	1230
4	3020	2470	1650	1600	1300	1650	2900	2900	3300	1460	949	1180
5	2980	2410	1850	1500	1100	1600	2900	2850	4090	1620	967	1080
6	3030	2380	1850	1500	1200	1610	2900	2800	4450	1810	932	1020
7	3030	2350	1850	1500	1550	1650	2900	2800	4250	1500	900	1030
8	3030	2320	1840	1550	1500	1720	2900	2800	3660	1440	876	1040
9	2910	2410	1810	1580	1480	1750	2900	2850	3050	1290	924	1020
10	2620	2380	1810	1580	1500	1780	2900	2900	2750	1190	932	1030
11	2500	2250	1820	1590	1550	1800	2950	2800	2640	1120	932	1030
12	2540	2250	1820	1600	1590	1800	3000	2600	2840	1050	976	1040
13	2590	2200	1810	1600	1610	1800	2950	2400	3970	1290	1120	1100
14	2590	2200	1800	1580	1650	1800	2900	2300	4160	1350	1660	1100
15	2780	2100	1810	1580	1700	1800	2950	2200	4250	1000	2710	1080
16	2700	1800	1820	1600	1710	1800	2950	2200	3900	932	2340	1090
17	2690	1500	1830	1550	1720	1800	2900	2250	3200	868	1560	1030
18	2700	1300	1620	1550	1750	1780	2900	2300	2960	828	1350	985
19	2660	1550	1820	1550	1750	1750	2950	2350	2850	820	1320	958
20	2750	2050	1810	1550	1800	1780	3000	2400	2800	836	1460	967
21	2620	2050	1830	1580	1800	1850	3000	2450	2800	852	1930	1010
22	2520	2080	1860	1580	1800	1920	3050	2700	2800	868	2010	1040
23	2520	2080	1880	1560	1800	1940	3000	3090	2800	1530	1630	1070
24	2530	2020	1890	1560	1800	1920	3000	3540	2800	1410	1540	1070
25	2500	2010	1900	1560	1800	1920	2950	4130	2730	1350	1540	1060
26	2540	2020	1900	1580	1800	1980	2950	4490	2650	1170	1740	1060
27	2530	2020	1910	1580	1800	2000	2920	4820	2540	1130	1520	1110
28	2460	2020	1900	1590	1800	2050	2900	5030	2500	1150	1450	1130
29	2460	2020	1900	1590	---	2080	2900	5480	2300	1100	1460	1150
30	2420	2000	1900	1590	---	2200	2900	6660	1950	1160	1370	1210
31	2410	---	1890	1550	---	2500	---	4860	---	1060	1280	---
TOTAL	83630	63650	57430	49470	45330	57200	87120	99550	95330	38594	42393	32440
MEAN	2698	2122	1853	1596	1619	1845	2904	3211	3178	1245	1368	1081
MAX	3030	2480	1930	1880	1800	2500	3050	6660	4450	1930	2710	1260
MIN	2410	1300	1800	1500	1100	1600	2400	2200	1950	820	876	958
AC-FT	165900	126200	113900	98120	89910	113500	172800	197500	189100	76550	84090	64340

CAL YR 1978 TOTAL 1047990 MEAN 2871 MAX 17900 MIN 700 AC-FT 2079000
WTR YR 1979 TOTAL 752137 MEAN 2061 MAX 6660 MIN 820 AC-FT 1492000

06279500 BIGHORN RIVER AT KANE, WY--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1947 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW (CFS) (00060)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	TUR-BID-ITY (JTU) (00070)	OXYGEN, DIS-SOLVED (MG/L) (00300)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	HARD-NESS (MG/L AS CACO3) (00900)
OCT										
15...	1000	--	2860	800	8.5	8.0	10	9.8	K80	270
NOV										
12...	1000	--	2280	740	8.3	1.0	20	12.5	K56	270
DEC										
10...	1000	1810	--	1000	8.1	.0	8	12.8	92	330
JAN										
10...	0915	1580	--	730	7.7	.0	40	11.9	84	320
FEB										
04...	1645	1300	--	1100	7.6	.0	4	12.0	--	340
MAR										
16...	1030	1780	--	1500	8.0	1.0	1000	12.4	260	250
APR										
18...	0920	2900	--	1100	8.2	11.0	90	9.6	220	290
JUN										
13...	0715	--	3390	510	8.1	16.0	55	8.5	200	160
JUL										
22...	0700	--	852	1100	8.3	22.0	30	6.7	430	360
AUG										
23...	1130	--	1570	1090	8.1	19.5	650	7.9	460	320

DATE	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)
OCT										
15...	110	68	25	80	2.1	3.5	200	0	160	1.6
NOV										
12...	110	69	23	76	2.0	3.1	190	0	160	1.5
DEC										
10...	130	87	28	98	2.3	3.8	240	0	200	3.1
JAN										
10...	130	84	27	84	2.0	4.2	230	0	190	7.3
FEB										
04...	140	69	26	110	2.6	3.9	240	0	200	9.6
MAR										
16...	110	61	24	190	5.2	10	170	0	140	2.7
APR										
18...	88	72	27	140	3.6	4.3	240	3	200	2.5
JUN										
13...	78	42	13	42	1.5	2.0	100	0	82	1.3
JUL										
22...	170	96	29	110	2.5	4.6	230	0	190	1.8
AUG										
23...	140	84	26	110	2.7	4.8	220	0	180	2.8

06279500 BIGHORN RIVER AT KANE, WY--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618)	PHOS- PHORUS, TOTAL (MG/L AS P) (00665)
OCT 15...	270	13	.5	7.6	566	.77	4600	.20	.06
NOV 12...	260	11	.5	2.2	536	.73	3300	.32	.10
DEC 10...	290	17	.6	9.0	656	.89	3210	.38	.03
JAN 10...	300	12	.6	11	635	.86	2710	.54	.12
FEB 04...	330	18	.7	11	713	.97	2500	.61	.05
MAR 18...	480	33	.7	4.1	891	1.21	4200	.88	3.4
APR 18...	340	17	.6	6.0	731	.99	5720	.20	.15
JUN 13...	160	5.5	.3	5.4	323	.44	2960	.18	.17
JUL 22...	380	17	.6	7.4	757	1.03	1740	.52	.08
AUG 23...	350	16	.6	12	718	.98	3040	.68	1.80

PESTICIDE ANALYSES, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	PCB, TOTAL (UG/L) (39516)	PCB, TOTAL IN BOT- TOM MA- TERIAL (UG/KG) (39519)	ALDRIN, TOTAL (UG/L) (39330)	ALDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG) (39333)	CHLOR- DANE, TOTAL (UG/L) (39350)	CHLOR- DANE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG) (39351)	DDD, TOTAL (UG/L) (39360)	DDD, TOTAL IN BOT- TOM MA- TERIAL (UG/KG) (39363)	DDE, TOTAL (UG/L) (39365)	DDE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG) (39368)
OCT 25...	1215	.0	0	.00	.0	.0	0	.00	.0	.00	.0
JUN 13...	1320	.0	1	.00	.0	.0	1	.00	.1	.00	.0

DATE	DDT, TOTAL (UG/L) (39370)	DDT, TOTAL IN BOT- TOM MA- TERIAL (UG/KG) (39373)	DI- AZINON, TOTAL (UG/L) (39570)	DI- ELDRIN TOTAL (UG/L) (39380)	DI- ELDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG) (39383)	ENDO- SULFAN, TOTAL (UG/L) (39388)	ENDRIN, TOTAL (UG/L) (39390)	ENDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG) (39393)	ETHION, TOTAL (UG/L) (39398)	HEPTA- CHLOR, TOTAL (UG/L) (39410)	HEPTA- CHLOR, TOTAL IN BOT- TOM MA- TERIAL (UG/KG) (39413)
OCT 25...	.00	.0	.00	.00	.1	.00	.00	.0	.00	.00	.0
JUN 13...	.00	.2	.00	.00	.2	.00	.00	.0	.00	.00	.0

DATE	HEPTA- CHLOR EPOXIDE TOTAL (UG/L) (39420)	HEPTA- CHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG) (39423)	LINDANE TOTAL (UG/L) (39340)	LINDANE TOTAL IN BOT- TOM MA- TERIAL (UG/KG) (39343)	MALA- THION, TOTAL (UG/L) (39530)	METHYL PARA- THION, TOTAL (UG/L) (39600)	METHYL TRI- THION, TOTAL (UG/L) (39790)	MIREX, TOTAL (UG/L) (39755)	NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L) (39250)	PARA- THION, TOTAL (UG/L) (39540)
OCT 25...	.00	.0	.00	.0	.00	.00	.00	.00	.00	.00
JUN 13...	.00	.0	.00	.1	.00	.00	.00	.00	--	.00

06279500 BIGHORN RIVER AT KANE, WY--Continued

PESTICIDE ANALYSES, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	PER-THANE TOTAL (UG/L) (39034)	TOX-APHENE, TOTAL (UG/L) (39400)	TOXA-PHENE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39403)	TOTAL TRI-THION (UG/L) (39786)	2,4-D, TOTAL (UG/L) (39730)	2,4-D, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39731)	2,4,5-T TOTAL (UG/L) (39740)	2,4,5-T TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39741)	SILVEX, TOTAL (UG/L) (39760)	SILVEX, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39761)
OCT										
25...	.00	0	0	.00	.00	0	.01	0	.00	.0
JUN										
15...	.00	0	0	.00	.46	0	.01	0	.00	.0

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPER-ATURE (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT						
05...	1250	8.0	2950	241	1[illegible]10	--
MAY						
21...	1250	17.0	2480	357	2390	87
JUL						
09...	1300	17.0	1290	122	425	--
SEP						
06...	1250	20.5	1020	66	182	--

06285100 SHOSHONE RIVER NEAR LOVELL, WY

LOCATION.--Lat 44°50'20", long 108°26'00", in NW¼NW¼ sec.16, T.56 N., R.96 W., Big Horn County, Hydrologic Unit 10080014, on right bank 30 ft (9 m) upstream from bridge on U.S. Highway 310 and 1.5 mi (2.4 km) west of Lovell.

DRAINAGE AREA.--2,350 mi^2 (6,090 km^2), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1966 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 3,850 ft (1,173 m), from topographic map. Prior to Oct. 1, 1976, at datum 1.00 ft (0.305 m) higher.

REMARKS.--Water-discharge records fair except those for November to February, which are poor. Flow regulated by Buffalo Bill Reservoir. Natural flow of stream affected by storage reservoirs, power development, diversions above station for irrigation of about 143,000 acres (579 km^2), of which about 8,000 acres (32.4 km^2) are below station, and return flow from irrigated areas.

AVERAGE DISCHARGE.--13 years, 1,039 ft^3/s (29.42 m^3/s), 752,800 acre-ft/yr (928 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,400 ft^3/s (379 m^3/s) July 1, 1967, gage height, 7.49 ft (2.283 m) present datum; maximum gage height, 9.09 ft (2.771 m) Feb. 3, 1972 (backwater from ice), present datum; minimum daily discharge, 27 ft^3/s (0.76 m^3/s) May 31, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,060 ft^3/s (58.3 m^3/s) May 30, gage height, 2.89 ft (0.881 m); maximum gage height, 7.11 ft (2.167 m) Feb. 14 (backwater from ice); minimum daily discharge, 184 ft^3/s (5.21 m^3/s) July 12.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1110	750	1010	880	660	700	1030	436	1130	589	589	632
2	1090	791	1000	880	620	700	1010	506	1140	513	474	640
3	1080	775	1000	880	620	690	1000	670	1210	513	480	640
4	1030	808	990	880	620	666	994	618	1190	547	540	567
5	1000	800	1000	880	640	676	1000	596	1070	567	610	436
6	950	753	1000	880	660	686	1020	560	967	500	596	430
7	949	709	1010	880	680	817	1030	567	1040	493	526	424
8	940	742	1020	880	700	1270	1020	693	967	430	569	430
9	931	766	1050	870	700	1000	1000	976	949	400	603	461
10	904	922	1060	870	700	852	1050	412	949	326	618	574
11	878	1160	1070	870	700	931	1100	365	843	280	686	589
12	869	1350	1080	870	720	1140	1020	230	694	184	775	640
13	904	1340	1000	870	730	1260	994	343	625	216	1090	647
14	825	1230	700	870	780	1050	985	193	487	220	1140	670
15	567	1260	720	870	760	1130	976	230	412	269	1240	663
16	500	1230	1120	860	680	1370	766	445	500	394	958	670
17	493	1240	1170	860	720	1320	913	468	589	430	766	663
18	834	1160	1200	860	700	1100	694	406	663	371	725	603
19	860	1130	1100	860	680	860	567	354	895	394	958	581
20	949	1140	1020	860	680	695	825	371	967	388	985	574
21	1150	1140	1040	840	660	985	750	442	940	388	1050	603
22	1120	1130	1060	830	660	1130	513	264	985	416	852	625
23	1170	1130	1100	820	680	1130	533	244	1030	480	800	640
24	1210	1120	1020	810	660	1160	632	284	1050	448	956	686
25	1180	1100	900	800	660	1160	547	424	1010	455	913	702
26	1160	1100	970	800	660	1070	461	493	913	493	852	686
27	1160	1080	960	800	670	1060	487	554	843	567	843	686
28	1150	1070	890	800	700	1110	474	694	766	618	852	678
29	1140	1050	880	800	---	1100	474	1180	670	686	808	702
30	1130	1030	860	780	---	1100	474	1530	625	742	750	750
31	750	---	880	720	---	1080	---	1140	---	709	625	---
TOTAL	29791	31006	30980	26230	19140	31260	24339	16688	26119	14028	24251	18292
MEAN	961	1034	999	846	684	1008	811	538	871	453	782	610
MAX	1210	1350	1200	880	780	1370	1100	1530	1210	742	1240	750
MIN	493	709	700	720	620	676	461	193	412	184	474	424
AC-FT	59090	61500	61450	52030	37960	62000	48280	33100	51810	27820	48100	36280

CAL YR 1978 TOTAL 452627 MEAN 1240 MAX 6920 MIN 254 AC-FT 897800
WTR YR 1979 TOTAL 292124 MEAN 800 MAX 1530 MIN 184 AC-FT 579400

06285100 SHOSHONE RIVER NEAR LOVELL, WY--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1967 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1966 to current year.
WATER TEMPERATURES: October 1966 to current year.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,580 micromhos Apr. 15, 1977; minimum daily, 238 micromhos June 26, 1974.
WATER TEMPERATURES: Maximum, 30.0°C June 6, 1969; minimum, 0.0°C on many days during winter period most years.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 976 micromhos Mar. 19; minimum daily, 547 micromhos May 9.
WATER TEMPERATURES: Maximum 20.0°C June 22, July 22; minimum, 0.0°C on many days during November to February.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW (CFS) (00060)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	TUR-BID-ITY (JTU) (00070)	OXYGEN, DIS-SOLVED (MG/L) (00300)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	HARD-NESS (MG/L AS CACO3) (00900)
OCT										
15...	1130	--	567	850	8.4	8.0	--	--	--	300
NOV										
12...	1130	--	1340	650	8.3	1.0	20	12.2	K170	260
DEC										
10...	1140	--	1020	710	8.2	.0	20	12.4	K52	260
JAN										
10...	1015	870	--	770	8.0	.0	3	12.8	K28	440
FEB										
04...	1030	620	--	1200	8.1	.0	3	12.9	52	510
MAR										
18...	1130	--	1130	910	8.2	4.5	800	12.4	280	260
APR										
18...	1045	--	866	820	8.2	11.0	170	10.2	K50	270
JUN										
13...	0900	--	655	660	8.1	16.0	35	8.8	K60	200
JUL										
22...	0830	--	394	760	8.1	18.0	40	7.5	--	240
AUG										
23...	1300	--	852	750	8.2	18.0	--	8.8	K120	230

DATE	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)
OCT										
15...	110	77	27	86	2.1	4.2	230	1	190	1.5
NOV										
12...	97	70	21	60	1.6	3.4	200	0	160	1.6
DEC										
10...	92	73	20	58	1.6	3.7	210	0	170	2.1
JAN										
10...	170	120	35	110	2.3	8.9	330	0	270	5.3
FEB										
04...	190	140	38	97	1.9	7.9	380	0	310	4.8
MAR										
18...	100	76	21	90	2.4	4.6	210	0	170	2.1
APR										
18...	100	74	20	63	1.7	3.8	200	0	160	2.0
JUN										
13...	65	54	17	63	1.9	3.3	170	0	140	2.2
JUL										
22...	63	63	19	77	2.2	3.8	210	0	170	2.7
AUG										
23...	62	61	20	69	2.0	3.3	210	0	170	2.1

06285100 SHOSHONE RIVER NEAR LOVELL, WY--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)
OCT 15...	270	10	.7	12	605	.82	926	.79	.02	.02
NOV 12...	190	8.0	.4	15	469	.64	1700	.65	.08	.01
DEC 10...	210	8.6	.4	15	495	.67	1360	.69	.10	.08
JAN 10...	380	17	.6	23	862	1.17	2030	1.0	.14	.14
FEB 04...	360	19	.7	23	877	1.19	1470	.93	.06	.06
MAR 18...	260	11	.5	11	580	.79	1770	.63	1.4	.02
APR 18...	200	9.4	.5	12	482	.66	1150	.24	.23	.03
JUN 13...	180	8.4	.4	11	424	.58	750	.80	.11	.03
JUL 22...	220	8.3	.5	14	514	.70	547	1.2	.19	.08
AUG 23...	140	15	.5	15	434	.59	998	1.4	.18	.05

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	720	792	692	685	---	876	789	682	612	695	706	834
2	704	770	623	685	---	876	760	726	595	690	685	817
3	705	773	694	690	---	876	789	662	565	715	770	804
4	701	792	700	693	---	862	772	651	550	725	790	821
5	684	782	674	715	---	849	671	660	556	691	737	817
6	689	785	659	752	---	860	682	691	585	714	740	815
7	707	819	665	770	---	887	711	645	569	714	745	817
8	701	829	668	787	---	811	694	680	572	734	745	807
9	707	841	610	780	---	902	662	547	574	706	708	818
10	709	757	683	748	---	943	665	765	598	831	725	793
11	719	649	662	728	---	936	760	804	583	838	716	762
12	709	684	638	690	---	861	731	771	600	800	708	768
13	726	681	674	646	---	822	662	836	624	762	685	780
14	766	710	773	665	---	879	688	743	689	795	702	764
15	850	741	881	693	---	891	688	756	727	762	679	749
16	885	723	783	707	---	805	671	752	740	762	725	749
17	887	717	691	690	---	786	699	773	718	718	713	741
18	820	712	674	699	---	847	716	792	696	707	722	755
19	723	704	645	682	853	976	857	795	640	720	722	778
20	735	712	668	710	861	945	710	823	651	704	716	775
21	688	705	665	---	857	907	733	781	673	737	786	775
22	715	691	657	---	846	796	820	846	643	723	738	770
23	685	712	668	---	889	855	750	907	618	707	727	755
24	652	697	645	---	870	765	688	841	593	707	733	738
25	667	697	634	---	842	742	716	848	577	701	716	738
26	671	671	691	---	829	765	733	757	597	696	733	749
27	680	682	680	---	840	841	710	762	619	693	762	741
28	651	682	674	---	833	852	730	726	635	712	779	750
29	676	745	677	---	---	852	714	677	662	696	772	741
30	671	743	680	---	---	829	682	706	690	662	793	739
31	712	---	685	---	---	812	---	659	---	685	830	---
MEAN	720	733	681	711	852	855	722	744	625	726	736	775

WTR YR 1979 MEAN 734 MAX 976 MIN 547

06285100 SHOSHONE RIVER NEAR LOVELL, WY--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13.0	8.5	.0	.0	---	2.0	5.0	11.0	11.0	16.0	17.0	14.0
2	12.5	9.0	.0	.0	---	2.0	5.5	7.5	10.0	16.0	18.0	16.0
3	11.0	9.5	.0	.5	---	1.0	6.0	8.5	13.0	16.0	17.5	16.0
4	13.0	10.5	.0	.0	---	1.5	5.5	10.5	15.0	18.0	18.0	16.0
5	9.0	8.0	.0	.0	---	2.0	5.0	12.0	16.0	18.5	18.0	16.0
6	10.5	7.0	.0	.0	---	4.0	8.5	10.0	14.0	19.0	18.5	16.0
7	11.0	7.5	.0	.0	---	4.0	8.5	9.0	10.0	17.5	19.0	16.5
8	12.0	7.5	.0	.0	---	4.0	6.0	9.0	10.0	17.5	18.0	17.0
9	12.0	7.0	.0	.0	---	4.0	8.0	6.0	11.0	17.0	17.0	17.0
10	12.0	.0	.0	.0	---	5.0	8.0	6.0	14.0	18.0	17.0	16.0
11	14.5	.0	.5	.0	---	5.0	5.0	9.0	14.0	17.5	17.0	13.0
12	11.0	1.0	.5	.0	---	4.5	4.0	11.0	15.0	18.0	17.5	13.5
13	9.0	1.0	.5	.0	---	4.5	6.0	11.5	17.0	17.5	16.0	13.0
14	10.0	.5	.0	.0	---	4.5	7.0	12.0	17.0	17.0	15.0	11.5
15	9.0	.0	.0	.0	---	4.5	9.0	12.0	15.0	16.0	16.0	11.0
16	11.0	.0	.5	.0	---	5.0	9.0	12.5	14.0	17.0	17.0	13.0
17	11.0	1.0	.0	.0	---	4.0	9.0	12.0	17.0	18.0	17.0	14.5
18	10.5	1.0	1.0	.0	---	4.5	10.0	13.5	16.0	18.0	17.0	13.0
19	11.5	.0	.5	.5	.0	3.5	9.0	13.5	13.0	18.5	17.0	14.0
20	10.5	.0	.0	.5	.0	3.5	9.0	12.0	13.0	19.0	17.0	14.0
21	10.5	.0	.0	---	.0	4.5	8.0	13.0	16.0	18.0	16.0	14.0
22	9.0	.0	.0	---	.0	4.5	10.0	14.0	20.0	20.0	16.0	14.5
23	9.5	.0	1.0	---	.0	4.0	9.0	14.0	16.0	18.5	16.5	14.5
24	9.0	1.0	1.0	---	.0	6.5	8.0	18.0	16.0	19.0	16.5	14.0
25	9.0	1.0	.0	---	.0	5.0	8.0	16.0	16.0	19.0	16.5	14.0
26	9.0	1.0	.5	---	.0	3.5	10.0	16.0	16.0	18.0	16.0	15.0
27	9.5	1.0	.0	---	.0	5.5	8.0	17.0	17.0	18.0	17.0	15.0
28	10.0	1.0	.0	---	.0	4.5	10.0	15.0	16.5	17.0	16.5	15.0
29	10.0	1.0	.0	---	---	6.0	10.0	15.0	18.0	16.0	16.0	13.0
30	9.0	1.5	.0	---	---	7.0	11.0	12.0	18.0	17.0	18.0	14.0
31	8.0	---	.0	---	---	6.0	---	10.0	---	16.0	16.0	---
MEAN	10.5	3.0	.0	.0	.0	4.0	8.0	12.0	15.0	17.5	17.0	14.5

WTR YR 1979 MEAN 9.0 MAX 20.0 MIN .0

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPERATURE (DEG C) (00010)	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT						
03...	1145	10.0	1040	48	135	84
31...	1145	6.0	742	62	124	--
DEC						
15...	1200	.5	703	126	239	--
MAR						
07...	1045	4.5	758	784	1610	91
APR						
06...	1200	8.5	1000	392	1060	94
MAY						
24...	1000	18.0	326	94	83	96
JUN						
12...	0915	16.0	717	208	403	79
JUL						
02...	1030	16.5	548	144	213	86
AUG						
02...	1330	21.0	513	108	150	89
09...	1530	14.5	647	82	143	95
SEP						
05...	1000	14.5	448	42	51	--

06286200 SHOSHONE RIVER AT KANE, WY

LOCATION.--Lat 44°51'31", long 108°19'52", in NE¼SE¼SE¼ sec.6, T.56 N., R.95 W., Big Horn County, Hydrologic Unit 10080014, at bridge on county road, 3.4 mi (5.5 km) northeast of Lovell, 6.5 mi (10.5 km) west of Kane, 6.6 mi (10.6 km) upstream from high-water line of Bighorn Lake at elevation 3,640 ft (1,109 m), and 7.8 mi (12.6 km) upstream from former discharge station.

DRAINAGE AREA.--2,989 mi² (7,742km²), at former discharge station.

PERIOD OF RECORD.--Water years 1976 to current year.

PESTICIDE ANALYSES, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	PCB, TOTAL (UG/L) (39516)	PCB, TOTAL IN BOTTOM MATERIAL (UG/KG) (39519)	ALDRIN, TOTAL (UG/L) (39330)	ALDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG) (39333)	CHLORDANE, TOTAL (UG/L) (39350)	CHLORDANE, TOTAL IN BOTTOM MATERIAL (UG/KG) (39351)	DDD, TOTAL (UG/L) (39360)	DDD, TOTAL IN BOTTOM MATERIAL (UG/KG) (39363)	DDE, TOTAL (UG/L) (39365)	DDE, TOTAL IN BOTTOM MATERIAL (UG/KG) (39368)
OCT											
25...	1300	.0	0	.00	.0	.0	0	.00	.0	.00	.0
JUN											
13...	1400	.0	0	.00	.0	.0	0	.00	.0	.00	.1

DATE	DDT, TOTAL (UG/L) (39370)	DDT, TOTAL IN BOTTOM MATERIAL (UG/KG) (39373)	DIAZINON, TOTAL (UG/L) (39570)	DIELDRIN TOTAL (UG/L) (39380)	DIELDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG) (39383)	ENDOSULFAN, TOTAL (UG/L) (39388)	ENDRIN, TOTAL (UG/L) (39390)	ENDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG) (39393)	ETHION, TOTAL (UG/L) (39398)	HEPTACHLOR, TOTAL (UG/L) (39410)	HEPTACHLOR, TOTAL IN BOTTOM MATERIAL (UG/KG) (39413)
OCT											
25...	.00	.0	.00	.00	.1	.00	.00	.0	.00	.00	.0
JUN											
13...	.00	.1	.00	.00	.0	.00	.00	.0	.00	.00	.0

DATE	HEPTACHLOR EPOXIDE TOTAL (UG/L) (39420)	HEPTACHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG) (39423)	LINDANE TOTAL (UG/L) (39340)	LINDANE TOTAL IN BOTTOM MATERIAL (UG/KG) (39343)	MALATHION, TOTAL (UG/L) (39530)	METHYL PARATHION, TOTAL (UG/L) (39600)	METHYL TRITHION, TOTAL (UG/L) (39790)	MIREX, TOTAL (UG/L) (39755)	NAPHTHALENES, POLYCHLOR. TOTAL (UG/L) (39250)	PARATHION, TOTAL (UG/L) (39540)
OCT										
25...	.00	.0	.00	.0	.00	.00	.00	.00	.00	.00
JUN										
13...	.00	.0	.00	.0	.00	.00	.00	.00	--	.00

DATE	PERTHANE TOTAL (UG/L) (39034)	TOXAPHENE, TOTAL (UG/L) (39400)	TOXAPHENE, TOTAL IN BOTTOM MATERIAL (UG/KG) (39403)	TOTAL TRITHION (UG/L) (39786)	2,4-D, TOTAL (UG/L) (39730)	2,4-D, TOTAL IN BOTTOM MATERIAL (UG/KG) (39731)	2,4,5-T TOTAL (UG/L) (39740)	2,4,5-T TOTAL IN BOTTOM MATERIAL (UG/KG) (39741)	SILVEX, TOTAL (UG/L) (39760)	SILVEX, TOTAL IN BOTTOM MATERIAL (UG/KG) (39761)
OCT										
25...	.00	0	0	.00	.00	0	.00	0	.00	.0
JUN										
13...	.00	0	0	.00	1.4	0	.00	0	.00	.0

06286400 BIGHORN LAKE NEAR ST. XAVIER, MT

LOCATION.--Lat 45°18'27", long 107°57'26", in SW¼SE¼ sec.18, T.6 S., R.31 E., Big Horn County, Hydrologic Unit 10080010, in block 13 of Yellowtail Dam on Bighorn River, 1.3 mi (2.1 km) upstream from Grapevine Creek, 15.5 mi (24.9 km) southeast of St. Xavier, and at mile 81.0 (130.3 km).

DRAINAGE AREA.--19,626 mi^2 (50,831 km^2).

PERIOD OF RECORD.--November 1965 to current year (monthend contents only). Prior to October 1969, published as "Yellowtail Reservoir." Records of daily elevations and contents on file in Helena district office.

GAGE.--Water-stage recorder in powerhouse control room. Datum of gage is referenced to National Geodetic Vertical Datum of 1929 (levels by Water and Power Resources Service).

REMARKS.--Reservoir is formed by thin concrete-arch dam; construction began in 1961; completed in 1967. Storage began Nov. 3, 1965. Usable capacity, 1,356,000 acre-ft (1.67 km^3) between elevation 3,296.50 ft (1,004.773 m), river outlet invert, and 3,657.00 ft (1,114.654 m), top of flood control. Elevation of spillway crest, 3,593.00 ft (1,095.146 m). Normal maximum operating level, 1,097,000 acre-ft (1.35 km^3), elevation, 3,640.00 ft (1,109.472 m). Minimum operating level, 483,400 acre-ft (596 hm^3), elevation, 3,547.00 ft (1,081.126 m). Dead storage, 18,970 acre-ft (23.4 hm^3) below elevation 3,296.50 ft (1,004.773 m). Figures given herein represent usable contents. Water is used for power production, flood control, irrigation, and recreation.

COOPERATION.--Elevations and capacity table furnished by Water and Power Resources Service.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 1,346,000 acre-feet (1.66 km^3) July 6, 1967 (elevation, 3,656.43 ft or 1,114.480 m); minimum since first filling, 660,700 acre-feet (815 hm^3) Mar. 11, 1970 (elevation, 3,584.45 ft or 1,092.540 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 1,072,000 acre-ft (1.32 km^3) June 29, elevation, 3,637.95 ft (1,108.847 m); minimum, 831,200 acre-ft (1.02 km^3) Mar. 8, elevation, 3,611.87 ft (1,100.898 m).

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	3,635.41	1,042,000	--
Oct. 31	3,635.65	1,045,000	+ 3,000
Nov. 30	3,632.30	1,008,000	- 37,000
Dec. 31	3,624.49	933,700	- 74,300
CAL YR 1978			- 28,200
Jan. 31	3,619.26	890,500	- 43,200
Feb. 28	3,613.07	839,500	- 51,000
Mar. 31	3,618.82	887,300	+ 47,800
Apr. 30	3,621.21	905,800	+ 18,500
May 31	3,628.05	965,700	+ 59,900
June 30	3,637.75	1,069,000	+ 103,300
July 31	3,630.80	992,700	- 76,300
Aug. 31	3,629.23	977,200	- 15,500
Sept. 30	3,629.24	977,300	+ 100
WTR YR 1979			- 64,700

06287000 BIGHORN RIVER NEAR ST. XAVIER, MT

LOCATION.--Lat 45°19'00", long 107°55'05", in NW¼NE¼ sec.16, T.6 S., R.31 E., Big Horn County, Hydrologic Unit 10080015, on right bank 800 ft (244 m) downstream from Yellowtail afterbay dam, 1,500 ft (460 m) downstream from Lime Kiln Creek, and 14 mi (23 km) southwest of St. Xavier.

DRAINAGE AREA.--19,667 mi^2 (50,938 km^2). Area at site used prior to Apr. 16, 1963, 19,626 mi^2 (50,831 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1934 to current year.

GAGE.--Water-stage recorder. Datum of gage is 3,158.38 ft (962.558 m) National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to Apr. 16, 1963, and June 13, 1964, to Mar. 31, 1965, water-stage recorder at site 1.2 mi (1.9 km) upstream at different datum. Apr. 1, 1965, to July 31, 1966, water-stage recorder at site 1,300 ft (400 m) downstream at present datum.

REMARKS.--Water-discharge records good. Figures of discharge given herein are sum of river flow and flow of Bighorn Canal. Some regulation by 14 reservoirs in Wyoming with combined capacity of 1,400,000 acre-ft (1,726 hm^3) and complete regulation by Bighorn Lake (see preceding page) since Nov. 3, 1965. Diversions for irrigation of about 375,000 acres (1,520 km^2) above station.

AVERAGE DISCHARGE.--45 years, 3,600 ft^3/s (102.0 m^3/s), 2,608,000 acre-ft/yr (3.22 km^3/yr), unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 37,400 ft^3/s (1,060 m^3/s) June 16, 1935; minimum observed, 49 ft^3/s (1.39 m^3/s) Mar. 29, 1966, result of discharge measurement (dam closure); minimum daily, 112 ft^3/s (3.17 m^3/s) Apr. 2, 1967.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,250 ft^3/s (149 m^3/s) July 5; minimum daily, 640 ft^3/s (18.1 m^3/s) Nov. 11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3840	4960	4290	3520	3530	3520	3520	4110	2930	3460	3610	2260
2	3840	4980	4290	3520	3520	3520	3510	4560	2930	3470	3620	2270
3	3840	4990	4290	3500	3520	3520	3520	4610	2930	3470	3600	2270
4	3840	5000	4290	3500	3520	3520	3520	4610	2930	3470	3570	2270
5	3830	4990	4290	3500	3520	3520	3530	4610	2920	4010	3590	2260
6	3840	4990	4290	3500	3520	3520	3520	4610	2930	3510	3590	2260
7	3840	5000	4300	3500	3520	3520	3520	4610	2930	3460	3590	2260
8	3830	4990	4290	3500	3520	3520	3530	4650	2930	3490	3610	2270
9	3820	4990	4290	3500	3520	3520	3530	4630	2930	3490	3610	2270
10	3840	1730	4320	3500	3520	3520	3520	3630	2930	3490	3630	2270
11	4210	640	4320	3520	3520	3520	3500	2720	2980	3490	3630	2280
12	4210	642	4300	3520	3520	3520	3500	2670	3010	3490	3640	2260
13	4210	888	4330	3520	3520	3520	3500	2670	2950	3500	3640	2270
14	4210	3970	4300	3520	3520	3510	3490	2670	2990	3510	3660	2270
15	4210	4300	4280	3520	3530	3520	3500	2670	3010	3510	3200	2260
16	4210	4300	4300	3520	3520	3520	3510	2670	2990	3510	2700	2270
17	4220	4290	4320	3520	3520	3520	3480	2670	2980	3530	2610	2270
18	4220	4290	4330	3520	3520	3520	3480	2670	2990	3530	2610	2260
19	4210	4290	4320	3520	3520	3520	3500	2670	2990	3540	2620	2270
20	4220	4300	4280	3520	3520	3520	3520	2670	3030	3540	2620	2260
21	4220	4290	4320	3520	3520	3510	3520	2670	3430	3550	2620	2270
22	4210	4290	4320	3520	3520	3520	3520	2670	3450	3550	2620	2270
23	4210	4290	4320	3520	3520	3520	3860	2660	3450	3550	2620	2260
24	4210	4280	4320	3520	3520	3520	4140	2660	3450	3550	2620	2260
25	4210	4300	4320	3510	3520	3520	4140	2680	3460	3570	2620	2260
26	4210	4290	4320	3500	3520	3520	4110	2620	3460	3580	2630	2260
27	1540	4290	4320	3520	3520	3520	4110	2620	3460	3580	2620	2270
28	3750	4290	4050	3520	3520	3520	4120	2620	3460	3580	2260	2260
29	4250	4260	3670	3520	---	3520	4110	2630	3470	3600	2240	2270
30	4230	4280	3500	3520	---	3520	4110	2710	3460	3600	2260	2270
31	4250	---	3500	3520	---	3520	---	2930	---	3610	2240	---
TOTAL	123780	121390	130980	108930	98580	109100	109940	100850	93760	109790	94300	67980
MEAN	3993	4046	4225	3514	3521	3519	3665	3253	3125	3542	3042	2266
MAX	4250	5000	4330	3520	3530	3520	4140	4650	3470	4010	3660	2280
MIN	1540	640	3500	3500	3520	3510	3480	2620	2920	3460	2240	2260
AC-FT	245500	240800	259800	216100	195500	216400	218100	200000	186000	217800	187000	134800

CAL YR 1978 TOTAL 1701990 MEAN 4663 MAX 11400 MIN 640 AC-FT 3376000
WTR YR 1979 TOTAL 1269380 MEAN 3478 MAX 5000 MIN 640 AC-FT 2518000

06287000 BIGHORN RIVER NEAR ST. XAVIER, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1963 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1966 to current year.
WATER TEMPERATURES: December 1962 to current year.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,180 micromhos on several days during 1966-67; minimum daily, 492 micromhos Aug. 28, 1971.
WATER TEMPERATURES: (1963-66) Maximum, 24.5°C on several days during 1963-65; minimum, 0.0°C on many days during winter periods most years; (1967 to current year) maximum daily, 20.5°C Aug. 23, 24, 1967; minimum daily, 1.0°C at times during winter months since regulation by Bighorn Lake.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,030 micromhos Apr. 23; minimum daily, 747 micromhos Nov. 8.
WATER TEMPERATURES: Maximum daily, 15.5°C Oct. 15; minimum daily, 1.0°C Jan. 28, Feb. 15, 16, 23.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE (DEG C) (00010)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM ADSORPTION RATIO (00931)
OCT 03...	1000	3620	867	8.3	14.5	280	--	76	23	82	2.1
NOV 08...	1030	5040	763	8.1	13.0	250	120	62	22	67	1.9
DEC 15...	1030	4370	756	8.1	6.5	250	110	61	23	68	1.9
JAN 16...	1000	3460	834	7.9	3.0	270	120	68	25	73	1.9
FEB 12...	1001	3510	915	8.0	2.5	310	170	78	28	82	2.0
MAR 20...	1000	3480	936	7.8	2.0	330	170	87	27	79	1.9
APR 11...	1030	3430	972	7.9	3.0	290	110	69	29	89	2.3
MAY 08...	1030	4670	--	--	5.0	320	160	80	28	92	2.3
JUN 12...	0840	2600	866	8.0	7.0	290	130	74	26	78	2.0
JUL 10...	0830	3070	867	8.4	7.0	300	140	79	26	74	1.8
AUG 15...	1130	2850	892	8.3	12.0	300	140	75	27	81	2.0
SEP 11...	0900	1980	865	8.2	13.0	290	130	75	26	74	1.9

DATE	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY (MG/L AS CACO3) (00410)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) (00631)	PHOSPHORUS, DISSOLVED (MG/L AS P) (00666)
OCT 03...	3.6	--	270	13	.4	11	--	--	--	.55	.03
NOV 08...	3.1	130	240	8.0	.3	11	493	.67	6710	.40	.02
DEC 15...	4.0	140	250	8.9	.3	10	511	.69	5990	.36	.03
JAN 16...	4.0	150	270	16	.3	11	559	.76	5220	.38	.02
FEB 12...	3.4	140	320	13	.4	12	623	.85	5900	.44	.01
MAR 20...	4.1	160	290	15	.5	12	613	.83	5760	.48	.01
APR 11...	3.9	180	310	13	.4	11	636	.87	5890	.45	.01
MAY 08...	2.2	160	300	13	.4	9.0	623	.85	7860	.39	.01
JUN 12...	3.6	160	290	16	.4	8.1	593	.81	4160	.23	--
JUL 10...	3.5	160	270	10	.4	9.2	570	.78	4690	.31	.01
AUG 15...	3.5	160	290	17	.4	10	602	.82	4630	.40	.01
SEP 11...	3.6	160	290	9.7	.4	9.7	587	.80	3140	.46	.00

06287000 BIGHORN RIVER NEAR ST. XAVIER, MT--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	860	767	---	754	891	894	969	975	848	831	870	868
2	879	772	---	755	897	896	951	998	837	829	872	864
3	868	774	792	752	903	896	959	1000	836	829	867	860
4	866	782	---	754	906	901	956	996	831	828	869	857
5	873	777	---	764	910	901	955	962	835	829	871	855
6	---	780	---	751	914	904	963	968	830	831	870	856
7	879	757	---	752	909	905	972	967	839	824	868	854
8	---	747	---	748	910	905	969	969	841	833	867	855
9	---	---	762	748	906	903	957	973	840	840	870	850
10	864	---	757	768	904	917	953	966	837	830	880	846
11	865	---	757	787	898	911	958	949	831	832	---	843
12	860	---	762	790	903	910	959	967	829	831	877	858
13	847	---	760	782	---	913	973	948	831	830	878	840
14	849	788	759	812	---	912	985	934	832	835	878	831
15	840	762	754	812	904	925	998	936	829	831	860	---
16	840	770	754	816	902	911	992	934	834	839	879	833
17	835	750	754	818	900	918	991	903	829	831	881	828
18	841	---	753	823	903	923	992	924	835	843	881	821
19	826	---	752	831	902	924	---	911	830	839	882	820
20	819	777	754	839	902	934	1010	923	836	838	880	822
21	828	785	752	852	903	941	---	921	830	849	881	810
22	825	775	749	---	902	944	1020	892	829	841	880	806
23	797	773	749	861	903	945	1030	939	---	847	880	801
24	770	777	752	868	893	947	1020	890	831	846	879	800
25	814	777	749	872	902	939	1020	891	828	841	881	801
26	787	775	---	874	901	937	995	912	820	850	881	797
27	882	768	752	883	---	945	995	903	828	844	875	792
28	819	749	753	887	903	950	1010	902	830	845	879	791
29	811	755	---	869	---	950	1010	897	---	850	879	790
30	808	774	752	878	---	952	996	881	832	854	880	791
31	810	---	750	879	---	948	---	890	---	853	876	---
MEAN	838	770	756	813	903	923	984	936	833	838	876	829

WTR YR 1979 MEAN 862 MAX 1030 MIN 747

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15.0	12.5	---	3.5	1.5	1.5	2.0	2.0	6.0	8.0	10.5	14.5
2	14.0	13.0	---	3.5	1.5	2.0	2.0	3.0	6.0	8.5	11.0	13.5
3	15.0	12.0	6.0	3.5	1.5	2.0	2.0	3.5	7.0	8.5	11.0	13.5
4	14.5	12.0	---	3.5	2.0	2.0	1.5	3.0	6.5	7.5	11.0	13.5
5	15.0	11.5	---	3.0	1.5	2.5	2.0	3.5	6.5	7.5	11.0	13.5
6	---	11.5	---	3.0	2.0	2.5	2.5	3.0	6.0	8.0	11.5	14.0
7	15.0	12.0	---	2.5	2.0	2.5	2.0	3.5	6.0	9.0	11.5	14.5
8	---	12.0	---	2.0	2.5	2.0	3.0	3.0	6.5	8.5	11.5	14.0
9	---	---	6.5	2.5	2.0	2.0	3.0	2.5	5.0	8.5	12.0	15.0
10	15.0	---	6.5	3.0	2.0	3.0	2.0	4.0	7.0	8.5	12.0	14.0
11	15.0	---	6.0	3.5	1.5	2.0	2.0	3.0	7.0	8.5	---	14.0
12	15.0	---	6.5	2.5	1.5	2.0	2.5	3.0	7.0	9.0	11.5	13.5
13	14.0	---	6.0	3.0	---	2.0	2.5	4.5	7.0	8.5	12.0	14.5
14	15.0	10.0	6.0	3.0	---	2.5	3.0	5.0	7.5	8.5	12.5	15.0
15	15.5	10.0	5.0	2.5	1.0	2.5	3.5	4.5	7.5	8.5	12.5	---
16	14.5	10.0	6.0	2.5	1.0	2.0	2.5	4.5	6.5	9.0	12.0	15.0
17	14.0	10.0	5.5	2.5	2.0	1.5	3.0	5.5	7.0	9.0	13.0	15.0
18	13.5	---	6.0	2.5	1.5	1.5	2.5	5.0	7.0	8.0	12.5	15.0
19	15.0	---	5.5	3.0	1.5	2.5	---	5.0	7.0	9.5	12.5	14.0
20	14.5	9.0	5.5	2.5	2.0	2.0	3.0	5.5	7.5	9.5	13.0	14.5
21	13.5	9.5	5.0	2.5	1.5	2.5	---	5.5	7.0	10.0	13.5	15.0
22	14.0	9.0	5.0	---	1.5	1.5	3.0	5.0	7.5	9.0	13.5	14.0
23	13.5	10.0	5.0	2.0	1.0	2.0	2.5	5.5	---	9.5	14.0	14.0
24	13.5	9.5	5.0	2.0	2.5	2.0	2.0	5.5	8.0	9.5	13.5	15.0
25	13.0	9.0	5.0	2.0	3.0	1.5	2.5	6.0	8.0	10.0	12.5	15.0
26	13.5	9.0	---	1.5	2.0	2.0	2.0	5.0	7.5	9.5	13.0	14.5
27	14.0	8.5	5.0	2.0	---	2.0	3.0	6.0	8.5	10.0	13.0	15.0
28	13.0	8.5	4.0	1.0	2.5	2.0	3.0	5.0	9.0	11.0	13.0	15.0
29	12.5	8.5	---	2.0	---	2.0	2.5	4.5	---	11.0	14.5	14.5
30	12.5	8.0	4.0	1.5	---	2.0	3.0	6.0	7.5	11.0	13.5	14.5
31	14.0	---	4.0	1.5	---	2.0	---	5.5	---	11.0	13.5	---
MEAN	14.0	10.0	5.5	2.5	2.0	2.0	2.5	4.5	7.0	9.0	12.5	14.5

WTR YR 1979 MEAN 7.0 MAX 15.5 MIN 1.0

06289000 LITTLE BIGHORN RIVER AT STATE LINE, NEAR WYOLA, MT

LOCATION.--Lat 45°00'25", long 107°37'05", in SW¼NW¼ sec.36, T.9 S., R.33 E., Bighorn County, Hydrologic Unit 10080016, on right bank 20 ft (6 m) downstream from county bridge, 0.5 mi (0.8 km) north of Wyoming-Montana State line, 1 mi (2 km) downstream from West Fork, and 13 mi (21 km) southwest of Wyola.

DRAINAGE AREA.--193 mi² (500 km²).

PERIOD OF RECORD.--March 1939 to current year. Prior to October 1940, published as Little Horn River at State line, near Wyola.

REVISED RECORDS.--WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 4,350 ft (1,326 m), from topographic map.

REMARKS.--Records fair except those for winter period, which are poor. Diversions for irrigation of 163 acres (660,000 m²) above station. Several observations of water temperature were made during the year and are available in files of Helena district office.

AVERAGE DISCHARGE.--40 years, 157 ft³/s (4.446 m³/s), 113,700 acre-ft/yr (140 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,730 ft³/s (77.3 m³/s) June 3, 1944, gage height, 4.87 ft (1.484 m), from rating curve extended above 1,400 ft³/s (39.6 m³/s); maximum gage height recorded, 5.93 ft (1.807 m) June 9, 1944 (log jam); minimum discharge, 21 ft³/s (0.59 m³/s) Dec. 27, 1954, result of freezeup.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 510 ft³/s (14.4 m³/s) and maximums (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
May 27	2130	*875	24.8	*3.21	0.978
June 5	2300	663	18.8	2.83	0.863
June 12	2230	551	15.6	2.63	0.802

Minimum daily discharge, 49 ft³/s (1.39 m³/s) Dec. 31 (result of freezeup).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	125	105	93	54	52	72	72	101	306	213	118	96
2	125	104	82	64	53	70	71	95	306	204	116	95
3	123	104	74	76	56	68	71	91	332	196	114	93
4	123	105	94	72	64	72	72	95	415	204	112	93
5	121	101	90	74	60	76	72	116	495	190	110	93
6	119	95	74	73	64	80	72	152	525	182	110	92
7	121	105	62	75	66	82	74	125	407	177	109	91
8	119	104	64	74	75	74	72	119	360	169	110	91
9	119	105	70	76	80	68	73	110	329	164	109	91
10	118	81	88	76	88	68	76	105	321	162	107	92
11	118	78	92	78	80	76	74	107	372	157	107	92
12	118	88	93	77	84	84	74	104	415	154	107	95
13	112	92	88	76	90	80	74	102	471	152	129	93
14	116	92	91	74	85	76	74	107	456	149	116	91
15	114	101	91	78	74	74	76	129	402	145	110	89
16	114	105	88	80	60	76	78	185	368	142	107	88
17	114	104	89	65	80	76	86	250	348	138	107	88
18	114	99	89	85	77	74	93	251	348	136	107	86
19	110	70	89	84	76	73	98	264	325	134	107	86
20	110	60	80	84	72	73	86	291	325	134	105	86
21	112	75	84	84	72	73	85	344	302	134	105	86
22	112	92	88	84	70	73	86	429	291	131	104	86
23	107	98	88	77	64	72	91	471	277	147	102	85
24	112	101	88	85	70	73	95	520	267	136	101	85
25	110	98	86	79	75	73	91	556	254	134	102	85
26	110	96	78	68	82	72	91	572	247	127	102	85
27	107	95	66	60	80	73	86	651	241	127	102	86
28	107	95	60	60	80	73	88	611	235	123	101	85
29	107	95	54	58	---	73	89	530	222	121	98	86
30	101	93	52	50	---	73	92	385	219	121	96	89
31	101	---	49	50	---	73	---	336	---	119	96	---
TOTAL	3539	2836	2474	2270	2031	2293	2432	8304	10181	4722	3326	2679
MEAN	114	94.5	79.8	73.2	72.5	74.0	81.1	268	339	152	107	89.3
MAX	125	105	94	85	90	84	98	651	525	213	129	96
MIN	101	60	49	50	52	68	71	91	219	119	96	85
AC-FT	7020	5630	4910	4500	4030	4550	4820	16470	20190	9370	6600	5310

CAL YR 1978 TOTAL 87917 MEAN 241 MAX 1610 MIN 49 AC-FT 174400
WTR YR 1979 TOTAL 47087 MEAN 129 MAX 651 MIN 49 AC-FT 93400

06290500 LITTLE BIGHORN RIVER BELOW PASS CREEK, NEAR WYOLA, MT

LOCATION.--Lat 45°10'38", long 107°23'36", in W½SW¼ sec.35, T.7 S., R.35 E., Big Horn County, Hydrologic Unit 10080016, on right bank 3.5 mi (5.6 km) north of Wyola and 6 mi (10 km) downstream from Pass Creek.

DRAINAGE AREA.--428 mi² (1,109 km²).

PERIOD OF RECORD.--March 1939 to December 1958, August 1959 to September 1975, October 1976 to current year. Prior to October 1940, published as Little Horn River below Pass Creek, near Wyola.

REVISED RECORDS.--WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 3,600 ft (1,100 m), from topographic map.

REMARKS.--Water-discharge records good except those for winter period, which are poor. Diversions for irrigation of about 8,300 acres (33.6 km²) above station.

AVERAGE DISCHARGE.--38 years, 217 ft³/s (6.145 m³/s), 157,200 acre-ft/yr (194 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,010 ft³/s (277 m³/s) May 19, 1978, gage height, 10.02 ft (3.054 m), from rating curve extended above 2,800 ft³/s (79.3 m³/s) on basis of slope-area measurement of peak flow; minimum, 12 ft³/s (0.34 m³/s) Aug. 5, 7, 8, 1961, gage height, 0.89 ft (0.271 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 986 ft³/s (27.9 m³/s) May 28, gage height, 4.32 ft (1.317 m), no peak above base of 1,000 ft³/s (28.3 m³/s); minimum daily, 75 ft³/s (2.12 m³/s) Dec. 31.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	168	156	145	90	84	160	191	189	506	267	139	102
2	164	156	140	110	90	155	183	205	470	258	126	100
3	159	156	120	120	100	150	173	202	462	251	125	100
4	163	157	140	110	110	150	171	190	520	283	122	98
5	161	159	130	110	100	160	168	194	632	280	122	93
6	163	154	120	110	105	175	165	222	699	244	121	92
7	164	157	105	115	110	175	221	236	642	239	119	91
8	164	160	105	115	120	160	232	222	546	227	120	85
9	161	160	120	120	130	160	222	227	483	214	120	80
10	157	135	140	120	155	190	252	222	449	198	118	86
11	159	130	170	120	140	229	257	201	474	181	117	90
12	161	135	160	120	140	281	222	198	527	168	117	95
13	159	140	160	125	150	359	203	187	563	166	142	95
14	157	140	165	130	160	293	207	184	576	165	153	94
15	164	145	155	135	140	286	215	189	536	161	139	92
16	166	155	150	140	120	303	223	229	[illegible]	165	130	88
17	168	160	150	150	150	326	233	322	452	158	127	90
18	172	150	150	155	170	249	251	356	457	148	124	92
19	168	130	150	160	170	206	300	354	438	139	125	88
20	168	120	150	165	160	188	276	372	433	139	125	90
21	170	140	155	160	150	183	220	419	401	137	123	91
22	174	160	160	150	140	194	203	511	388	134	121	89
23	163	170	160	140	130	194	199	578	357	151	118	88
24	164	180	155	125	125	215	197	628	347	154	117	90
25	164	170	150	130	130	258	191	704	331	158	126	91
26	161	160	145	120	150	194	193	723	313	168	132	93
27	159	160	140	110	170	178	201	786	309	161	127	95
28	158	150	120	98	170	170	185	859	307	154	122	91
29	159	145	110	86	---	172	179	828	287	148	108	91
30	156	145	86	80	---	204	177	681	279	145	105	95
31	151	---	75	80	---	202	---	586	---	154	103	---
TOTAL	5045	4535	4281	3799	3769	6519	6310	12004	13664	5715	3833	2755
MEAN	163	151	138	123	135	210	210	387	455	184	124	91.8
MAX	174	180	170	165	170	359	300	859	699	283	153	102
MIN	151	120	75	80	84	150	165	184	279	134	103	80
AC-FT	10010	9000	8490	7540	7480	12930	12520	23810	27100	11340	7600	5460

CAL YR 1978 TOTAL 142201 MEAN 390 MAX 6090 MIN 70 AC-FT 282100
WTR YR 1979 TOTAL 72229 MEAN 198 MAX 859 MIN 75 AC-FT 143300

06294000 LITTLE BIGHORN RIVER NEAR HARDIN, MT

LOCATION.--Lat 45°44'08", long 107°33'27", in SE¼NE¼NE¼ sec.19, T.1 S., R.34 E., Big Horn County, Hydrologic Unit 10080016, on left bank 50 ft (15 m) downstream from bridge on Sarpy Road, 0.2 mi (0.3 km) upstream of terminal wasteway of Agency Canal, 0.6 mi (1.0 km) upstream from mouth, and 2.3 mi (3.7 km) east of Hardin.

DRAINAGE AREA.--1,294 mi² (3,351 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1953 to current year.

GAGE.--Nonrecording gage. Datum of gage is 2,882.29 ft (878.522 m) National Geodetic Vertical Datum of 1929 (levels by Army Corps of Engineers). Prior to Oct. 7, 1953, nonrecording gage at site 0.4 mi (0.6 km) downstream. Oct. 7, 1953, to May 6, 1963, water-stage recorder at site 0.3 mi (0.5 km) downstream. May 6, 1963, to Nov. 6, 1963, nonrecording gage at site 0.4 mi (0.6 km) downstream. All at different datums. Nov. 7, 1963, to Aug. 15, 1976, water-stage recorder at site 35 ft (11 m) downstream at present datum. Aug. 15, 1976 to Sept. 30, 1978, water-stage recorders located on each bank downstream of Sarpy Road bridge and were used depending on control conditions. The left bank gage is given in the "LOCATION" paragraph. The right bank gage location was lat 45°44'10", long 107°33'25", in SW¼NW¼NW¼ sec.20, T.1 S., R.34 E., at approximately the same datum. Oct. 1, 1978, to Sept. 30, 1979, nonrecording gage on Sarpy Road Bridge.

REMARKS.--Water-discharge records fair except those for winter period, which are poor. Flow partly regulated by Willow Creek Reservoir (capacity 23,000 acre-ft, 28.4 hm³). Diversions for irrigation of about 17,000 acres (68.8 km²) above station. Figures of discharge given herein include flow of terminal wasteway of Agency Canal.

AVERAGE DISCHARGE.--26 years, 326 ft³/s (9.232 m³/s), 236,200 acre-ft/yr (291 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22,600 ft³/s (640 m³/s) May 19, 1978, gage height, 11.20 ft (3.414 m), used gage height as obtained at bridge on Sarpy Road; maximum gage height, 11.78 ft (3.591 m) Mar. 20, 1960, site and datum then in use (backwater from ice); minimum discharge observed, 0.20 ft³/s (0.006 m³/s) Aug. 7, 1961, result of discharge measurement.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 1,900 ft³/s (53.8 m³/s) Mar. 16; minimum observed, 73 ft³/s (2.07 m³/s) Sept. 12.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	261	276	210	120	130	270	694	417	1020	300	156	127
2	261	273	200	135	130	270	623	429	829	288	169	122
3	260	279	200	160	130	270	586	441	733	272	143	115
4	257	279	180	170	135	260	517	447	667	248	119	116
5	260	279	170	150	150	270	531	423	666	247	116	111
6	263	276	200	150	160	280	504	429	666	279	121	104
7	268	276	190	160	160	290	510	412	898	254	120	103
8	271	276	160	170	170	310	681	435	935	202	113	111
9	270	312	150	170	180	360	733	429	849	191	111	106
10	270	351	190	170	195	450	702	417	746	184	105	94
11	267	291	240	170	210	601	757	441	683	157	103	86
12	264	231	310	170	220	751	805	435	603	148	103	86
13	274	231	300	170	240	1000	702	412	668	123	111	112
14	273	221	260	170	260	1300	632	395	740	97	123	99
15	273	221	260	180	225	1700	571	373	806	105	145	98
16	276	231	250	190	200	1900	571	363	766	115	161	98
17	279	251	250	200	200	1800	566	363	697	98	160	108
18	285	261	250	215	220	1710	601	412	633	115	145	94
19	285	201	250	230	250	1390	673	530	620	110	142	104
20	289	180	250	240	250	982	710	536	621	113	145	110
21	285	170	250	250	250	899	718	536	570	109	143	100
22	292	190	250	250	240	990	586	579	545	102	131	106
23	292	220	260	250	230	870	503	658	524	102	133	106
24	295	240	260	230	230	876	477	757	479	100	135	106
25	289	260	240	210	240	1150	490	813	447	113	116	101
26	289	250	240	190	260	1170	490	921	423	131	118	119
27	285	240	240	180	260	781	471	951	401	147	123	110
28	285	230	220	165	270	645	543	1040	385	154	120	91
29	282	220	190	150	---	608	465	1130	383	157	107	93
30	282	220	150	140	---	601	453	1220	343	189	111	93
31	282	---	120	130	---	781	---	1210	---	186	112	---
TOTAL	8564	7436	6910	5635	5795	25535	17885	18354	19346	5136	3962	3129
MEAN	276	248	223	182	207	824	596	592	645	166	128	104
MAX	295	351	310	250	270	1900	805	1220	1020	300	169	127
MIN	257	170	120	120	130	260	453	363	343	97	103	86
AC-FT	16990	14750	13710	11180	11490	50650	35470	36410	38370	10190	7860	6210

CAL YR 1978 TOTAL 236249 MEAN 647 MAX 15800 MIN 100 AC-FT 468600
WTR YR 1979 TOTAL 127687 MEAN 350 MAX 1900 MIN 86 AC-FT 253300

06294000 LITTLE BIGHORN RIVER NEAR HARDIN, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1970 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1969 to current year.
WATER TEMPERATURES: October 1969 to current year.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,870 micromhos Apr. 7, 1979; minimum daily, 377 micromhos June 18, 1974.
WATER TEMPERATURES: Maximum daily, 30.0°C Aug. 9, 12, 1971; minimum daily, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,870 micromhos Apr. 7; minimum daily, 459 micromhos May 29.
WATER TEMPERATURES: Maximum daily, 24.0°C Aug. 5-7; minimum daily, 0.0°C on many days during November to March.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)
OCT											
04...	1000	249	863	8.4	11.5	370	150	80	41	59	1.3
NOV											
08...	1350	269	918	8.2	7.0	370	140	78	42	60	1.4
DEC											
13...	1230	306	1150	8.1	.0	460	180	100	52	89	1.8
JAN											
17...	1000	201	1060	7.6	.0	420	150	92	47	72	1.5
FEB											
13...	1100	245	1070	7.9	.0	340	170	96	25	77	1.8
MAR											
08...	1220	311	1130	8.0	.0	460	200	100	50	87	1.8
APR											
13...	0900	669	1560	8.3	6.0	510	240	90	70	170	3.3
MAY											
11...	0930	407	1230	8.3	10.0	490	230	99	60	110	2.2
JUN											
14...	0815	768	636	8.1	21.0	270	93	63	28	33	.9
JUL											
11...	0800	160	805	8.5	22.0	330	120	77	33	49	1.2
AUG											
17...	1030	131	823	8.3	21.5	330	130	65	41	58	1.4
SEP											
13...	1000	96	880	8.3	15.0	320	130	65	38	67	1.6

DATE	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)
OCT											
04...	2.7	220	250	4.9	.2	6.1	578	.79	389	.03	.00
NOV											
08...	2.6	230	250	4.7	.2	6.9	585	.80	425	.06	.00
DEC											
13...	3.8	280	380	6.6	.2	9.0	812	1.10	671	.34	.03
JAN											
17...	3.3	270	310	5.8	.2	9.7	705	.96	383	.51	.02
FEB											
13...	2.6	170	320	5.6	.2	10	640	.87	423	.38	.00
MAR											
08...	3.1	260	380	7.2	.3	9.3	795	1.08	668	.34	.01
APR											
13...	4.6	270	630	10	.3	8.5	1150	1.56	2080	.15	.01
MAY											
11...	3.4	260	430	7.3	.2	5.8	872	1.19	958	.01	.01
JUN											
14...	2.0	180	160	2.7	.2	5.6	406	.55	842	.74	.00
JUL											
11...	3.3	210	230	4.8	.3	7.1	531	.72	229	.00	.01
AUG											
17...	3.2	200	230	4.9	.2	6.6	530	.72	187	.10	.00
SEP											
13...	3.3	190	280	5.5	.2	5.7	579	.79	158	.06	.00

06294000 LITTLE BIGHORN RIVER NEAR HARDIN, MT--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	884	885	---	1230	1120	1120	1560	1260	817	671	870	830
2	888	---	1050	---	1120	1140	1560	1260	795	670	1100	827
3	879	---	1080	1300	1120	1130	1610	1240	770	672	918	823
4	880	882	---	1240	1120	1090	1720	1220	761	691	921	848
5	879	891	1100	1330	1100	1040	1660	1210	742	693	920	829
6	875	884	1130	1370	1080	1100	1800	1220	680	679	932	836
7	860	888	1120	1290	1080	1100	1870	1220	595	679	939	817
8	872	888	1110	---	1060	1140	1860	1190	537	727	937	819
9	---	899	1110	1290	---	1120	1640	1110	586	748	942	793
10	868	896	1140	---	1080	1080	1500	1080	674	762	932	811
11	874	902	1160	---	1060	1240	1540	1060	609	792	936	852
12	884	993	1170	1290	1060	1340	1610	1100	601	792	939	865
13	881	993	1120	---	1060	1450	1630	1110	659	812	936	860
14	881	967	1090	---	1080	1400	1610	1160	600	857	921	862
15	880	1100	---	1040	---	1360	1670	1140	551	901	895	843
16	879	1060	1100	1040	---	1360	1630	1120	515	875	881	827
17	889	1060	1100	---	1120	1400	1580	1060	518	855	846	832
18	894	1050	1120	1280	1090	1420	1530	1040	547	892	840	836
19	894	1050	1140	1040	1060	1400	1480	934	576	884	831	845
20	894	1050	1150	1050	1050	1420	1520	845	604	904	832	842
21	900	705	1150	1050	1120	1520	1490	799	634	901	829	837
22	908	983	1130	1040	1130	1620	1440	767	659	922	836	841
23	900	---	1130	1100	1080	1690	1440	706	654	946	838	832
24	889	1140	1100	1090	1050	1730	1480	648	639	971	834	842
25	909	1100	---	---	1110	1730	1520	577	634	985	832	821
26	918	1070	1090	1090	1130	1460	1530	538	655	976	828	820
27	929	1010	1100	1090	1110	1420	1540	516	646	954	823	810
28	927	1000	---	1050	1060	1620	1530	486	639	924	819	795
29	916	999	1230	1060	---	1720	1550	459	642	922	812	787
30	920	997	---	1040	---	1790	1510	493	642	897	815	792
31	927	---	---	1040	---	1790	---	643	---	866	820	---
MEAN	893	976	1120	1150	1090	1390	1590	942	644	833	883	829

WTR YR 1979 MEAN 1020 MAX 1870 MIN 459

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15.0	7.5	.0	.0	.0	.0	5.0	12.0	10.0	20.0	21.0	19.5
2	13.5	---	.0	.0	.0	.0	5.5	8.5	13.0	18.0	20.0	19.0
3	11.5	---	.0	.0	.0	.0	5.5	9.0	15.5	19.0	21.0	20.0
4	12.0	7.0	.0	.0	.0	.0	5.5	9.0	17.0	21.0	20.0	18.5
5	11.0	5.0	.0	.0	.0	.0	4.5	12.0	18.0	21.0	24.0	18.0
6	11.0	6.0	.0	.0	.0	.0	6.5	12.0	17.0	21.0	24.0	18.0
7	10.5	5.0	.0	.0	.0	.0	8.0	10.0	---	22.0	24.0	18.5
8	11.0	6.5	.0	.0	.0	.0	9.0	9.0	---	22.0	22.0	18.5
9	---	6.0	.0	.0	.0	.0	11.0	8.5	---	22.0	20.0	23.0
10	11.5	3.0	.0	.0	.0	.0	8.5	8.5	---	22.0	20.0	16.0
11	12.5	.0	.0	.0	.0	.0	6.0	9.0	---	21.5	19.0	14.5
12	11.5	.0	.0	.0	.0	.0	4.0	10.0	---	20.0	20.0	14.0
13	9.0	.0	.0	.0	.0	.5	5.5	11.5	19.0	21.0	19.0	13.0
14	10.5	.0	.0	.0	.0	.5	8.0	12.5	19.0	18.5	17.0	12.0
15	8.5	.0	.0	.0	.0	.5	11.5	13.5	19.0	18.5	18.0	13.0
16	6.5	.0	.0	.0	.0	.0	10.5	16.0	17.0	19.0	20.0	14.0
17	10.0	.0	.0	.0	.0	.5	12.0	15.5	18.0	20.0	19.0	15.0
18	9.0	.0	.0	.0	.0	.0	12.5	16.0	17.0	21.0	20.5	15.5
19	9.5	.0	.0	.0	.0	.5	11.0	15.5	15.0	21.0	21.0	16.0
21	9.0	.0	.0	.0	.0	.0	12.0	15.5	17.0	22.0	17.5	14.5
22	8.0	.0	.0	.0	.0	.5	10.5	15.0	17.0	23.0	19.0	16.0
23	8.0	---	.0	.0	.0	.5	8.5	15.5	17.0	21.0	20.0	15.5
24	9.0	.0	.0	.0	.0	1.5	7.5	17.0	18.0	21.0	19.0	14.5
25	7.5	.0	.0	.0	.0	2.0	8.0	18.0	19.0	19.5	20.0	14.5
26	6.5	.0	.0	.0	.0	1.0	8.5	17.0	20.0	19.5	19.0	15.5
27	8.0	.0	.0	.0	.0	2.0	11.0	17.5	20.0	19.5	19.0	15.0
28	7.0	.0	.0	.0	.0	1.5	10.0	16.0	19.0	20.5	18.0	13.5
29	6.5	.0	.0	.0	---	3.5	12.0	14.0	20.0	21.5	18.0	14.0
30	6.5	.0	.0	.0	---	5.0	13.0	11.0	21.0	20.0	19.5	13.5
31	5.0	---	.0	.0	---	5.0	---	10.0	---	20.0	19.0	---
MEAN	9.5	1.5	.0	.0	.0	1.0	9.0	13.0	17.5	20.5	20.0	16.0

WTR YR 1979 MEAN 9.0 MAX 24.0 MIN .0

06294690 TULLOCK CREEK NEAR BIGHORN, MT

LOCATION.--Lat 46°05'08", long 107°24'20", in NE¼NE¼NE¼ sec.19, T.4 N., R.35 E., Treasure County, Hydrologic Unit 10080015, on right bank at old diversion dam, 0.3 mi (0.5 km) upstream from Thunder Creek, 5.6 mi (9.0 km) south of Bighorn, and 8 mi (13 km) upstream from mouth.

DRAINAGE AREA.--446 mi² (1,155 km²).

PERIOD OF RECORD.--October 1974 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 2,770 ft (844 m), from topographic map.

REMARKS.--Records good except those for winter periods and those below 2.0 ft³/s (0.05 m³/s), which are poor. Diversions for irrigation of about 215 acres (87 km²) above station. Several observations of water temperature were made during the year and are available in files of the Helena district office.

AVERAGE DISCHARGE.--5 years, 14.1 ft³/s (0.399 m³/s), 10,220 acre-ft/yr (12.6 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,960 ft³/s (55.5 m³/s) Mar. 2, 1975, gage height, 7.4 ft (2.26 m), from floodmark; no flow on many days each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, undetermined, Mar. 17, probably was the only peak above base of 100 ft³/s (2.83 m³/s); maximum gage height, 6.05 ft (1.844 m) Mar. 17 (backwater from ice); minimum daily discharge, 0.10 ft³/s (0.003 m³/s) on several days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.0	4.3	5.0	4.5	4.0	5.2	64	21	7.4	15	1.0	.27
2	2.6	4.9	4.4	4.5	4.2	5.0	58	20	10	17	.85	.16
3	1.9	4.1	5.5	4.5	4.5	4.6	48	19	13	7.1	.78	.13
4	1.5	5.3	6.0	4.3	4.7	4.5	44	20	12	5.8	.78	.13
5	1.4	6.1	5.8	4.3	5.0	5.0	38	20	14	3.6	.78	.11
6	1.5	3.3	5.6	4.5	4.5	6.0	38	23	13	2.9	.76	.10
7	1.7	4.8	5.4	4.6	4.4	7.2	38	24	13	1.7	.78	.10
8	1.5	7.1	5.6	4.8	4.2	7.4	40	20	13	1.4	.78	.10
9	1.4	7.1	5.8	5.0	4.5	7.5	39	18	10	1.4	.73	.10
10	1.3	6.0	6.0	5.0	4.7	12	39	19	9.7	1.6	.68	.13
11	1.3	4.5	6.0	4.7	4.8	15	42	18	8.7	1.5	.65	.13
12	1.2	4.0	6.0	4.6	4.7	20	46	19	7.5	1.5	.65	.11
13	1.3	4.0	5.6	4.5	4.6	30	45	16	6.3	1.5	.63	.10
14	1.3	4.0	6.0	4.4	4.5	120	42	17	5.8	1.2	.68	.10
15	1.3	4.0	6.6	4.3	4.4	230	40	18	6.2	1.1	.44	.10
16	1.3	4.6	6.0	4.4	4.3	280	37	17	5.1	1.0	.51	.11
17	1.3	5.5	5.2	4.5	4.5	300	37	15	4.8	1.1	.47	.11
18	1.3	4.5	5.2	4.7	4.7	200	35	14	5.4	1.1	.51	.10
19	1.2	4.0	5.2	4.9	4.9	150	31	13	20	1.0	.55	.10
20	1.3	3.5	5.4	5.0	4.9	120	30	7.2	10	1.1	.51	.10
21	1.7	3.0	5.6	5.2	4.8	104	29	5.1	8.7	1.2	.55	.10
22	3.3	3.5	6.0	4.7	4.7	101	29	5.1	7.2	1.0	.59	.10
23	3.8	4.0	5.8	4.3	4.6	99	29	5.4	6.6	1.0	.54	.10
24	4.8	5.0	5.0	4.3	4.7	94	29	4.8	6.2	1.0	.73	.10
25	3.5	4.5	5.4	4.5	5.2	94	27	4.4	5.9	2.1	.89	.11
26	2.1	5.0	5.2	4.4	5.2	95	26	4.1	5.5	3.1	.83	.13
27	2.0	4.5	5.0	4.3	5.2	88	25	3.9	5.6	1.5	.89	.14
28	2.7	6.0	4.5	4.0	5.2	76	24	5.0	5.5	1.2	.63	.16
29	3.5	6.0	4.5	4.0	---	72	23	9.3	4.8	1.1	.73	.16
30	3.3	5.5	4.2	4.0	---	70	22	13	28	1.0	.44	.16
31	3.8	---	4.0	4.0	---	68	---	7.1	---	1.0	.27	---
TOTAL	65.1	142.6	166.3	139.7	130.6	2495.4	1094	427.4	278.9	84.8	20.62	3.65
MEAN	2.10	4.75	5.36	4.51	4.66	80.5	36.5	13.8	9.30	2.74	.67	.12
MAX	4.8	7.1	6.6	5.2	5.2	300	64	24	28	17	1.0	.27
MIN	1.2	3.0	4.0	4.0	4.0	4.5	22	3.9	4.8	1.0	.27	.10
AC-FT	129	283	330	277	259	4950	2170	848	553	168	41	7.2

CAL YR 1978 TOTAL 7606.94 MEAN 20.8 MAX 777 MIN .00 AC-FT 15090
WTR YR 1979 TOTAL 5051.07 MEAN 13.8 MAX 300 MIN .10 AC-FT 10020

06294700 BIGHORN RIVER AT BIGHORN, MT

LOCATION.--Lat 46°08'50", long 107°28'00", in NE¼NE¼NE¼ sec.33, T.5 N., R.34 E., Treasure County, Hydrologic Unit 10080015, on right bank 150 ft (46 m) downstream from bridge on old U.S. Highway 10, 0.3 mi (0.5 km) downstream from bridge on Interstate Highway 94, 0.7 mi (1.1 km) upstream from mouth, 1.3 mi (2.1 km) southwest of Bighorn, and 4.4 mi (7.1 km) east of Custer.

DRAINAGE AREA.--22,885 mi² (59,727 km²). Area at site used prior to Oct. 7, 1955, 22,410 mi² (58,042 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1945 to current year. Prior to Oct. 7, 1955, published as "near Custer".

GAGE.--Water-stage recorder. Altitude of gage is 2,690 ft (820 m), by barometer. May 11 to Dec. 6, 1945, nonrecording gage, and Dec. 7, 1945, to Oct. 6, 1955, water-stage recorder, at site 4 mi (6 km) upstream at different datum.

REMARKS.--Water-discharge records fair except those for winter periods, which are poor. Major regulation by 14 reservoirs in Wyoming and 1 in Montana with combined usable storage of about 1,400,000 acre-ft (1.73 km²), and Bighorn Lake (see p. 605). Diversions for irrigation of about 465,000 acres (1,880 km²) above station.

AVERAGE DISCHARGE.--34 years, 3,970 ft³/s (112.4 m³/s), 2,876,000 acre-ft/yr (3.55 km³/yr), unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 59,200 ft³/s (1,680 m³/s) May 20, 1978, gage height, 14.15 ft (4.313 m); maximum gage height recorded, 14.21 ft (4.331 m) Apr. 2, 1965 (ice jam); minimum discharge, about 275 ft³/s (7.79 m³/s) Nov. 15, 1959, result of freezeup; minimum daily, 400 ft³/s (11.3 m³/s) Apr. 4, 1967.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 9,180 ft³/s (260 m³/s) Mar. 14, gage height, 5.44 ft (1.658 m); maximum gage height, 10.10 ft (3.078 m) Mar. 13 (backwater from ice jam); minimum daily discharge, 1,020 ft³/s (28.9 m³/s) Nov. 12, 13.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4240	4750	4900	3700	3600	4300	4770	4690	4320	4970	3660	2370
2	4180	5330	4860	3900	3700	4400	4620	4710	3760	4950	3580	2370
3	4200	5370	4790	3900	3700	4400	4640	5240	3480	4450	3540	2310
4	4180	5370	4730	3600	3900	4400	4490	5190	3320	4240	3500	2330
5	4200	5350	4770	3300	4000	4400	4430	4990	3460	4110	3480	2330
6	4180	5370	4730	3400	4400	4400	4240	5150	4010	4470	3420	2260
7	4200	5350	4750	3400	4300	4500	4390	5150	5080	3740	3380	2280
8	4220	5410	4900	3500	4400	4700	4280	5260	5350	3580	3280	2290
9	4220	5480	4690	3500	4100	5000	4640	5210	4540	3500	3380	2240
10	4180	5640	4660	3500	4000	5400	4580	5040	3850	3180	3440	2260
11	4200	2370	4620	3600	4100	6000	4730	4320	3620	3280	3360	2220
12	4560	1020	4730	3600	4100	7000	4860	3420	3560	3220	3440	2260
13	4600	1020	4790	3500	4100	7600	4770	3420	3990	3180	3500	2280
14	4600	1050	4770	3400	4100	8430	4450	3320	4770	3240	3520	2280
15	4640	4450	4790	3500	4000	7820	4390	3360	6130	3240	3600	2260
16	4640	4710	4710	3600	3900	7920	4320	3320	6150	3220	3300	2260
17	4640	4750	4710	3700	4000	8220	4370	3280	5190	3140	2720	2260
18	4620	4860	4690	3700	4200	7670	4370	3340	4730	3180	2650	2260
19	4600	4690	4640	3800	4500	6630	4510	3600	5040	3100	2720	2260
20	4640	4640	4600	3900	4600	5890	4560	3540	5620	3140	2720	2220
21	4640	4640	4730	4000	4500	5530	4580	3540	5620	3220	2760	2190
22	4640	4620	4730	3900	4400	5480	4340	3520	5640	3200	2740	2190
23	4660	4660	4730	3800	4300	5280	4280	3560	5370	3360	2670	2200
24	4640	4730	4770	3700	4300	5260	4710	3620	5210	3360	2650	2190
25	4640	4860	4770	3700	4300	5460	4840	4050	5100	3460	2630	2190
26	4600	4860	4710	3700	4300	5570	4620	4180	5120	3460	2840	2200
27	4620	4880	4730	3700	4300	5190	4750	4450	5260	3500	2820	2170
28	2050	4900	4500	3700	4300	4840	4820	5010	5300	3620	2560	2150
29	3820	4860	4100	3700	---	4710	4730	6010	5120	3700	2390	2100
30	4660	4820	3700	3700	---	4600	4690	5850	5040	3780	2350	2120
31	4620	---	3600	3600	---	4750	---	4930	---	3800	2350	---
TOTAL	135330	134810	143960	113200	116400	175750	136990	134290	142750	111590	94950	67300
MEAN	4365	4494	4644	3652	4157	5669	4566	4332	4758	3600	3063	2243
MAX	4660	5640	4900	4000	4600	8430	4880	6010	6150	4970	3660	2370
MIN	2050	1020	3600	3300	3600	4300	4240	3280	3320	3100	2350	2100
AC-FT	268400	267400	285500	224500	230900	348600	271700	266400	283100	221300	188300	133500

CAL YR 1978 TOTAL 2082340 MEAN 5705 MAX 50000 MIN 1020 AC-FT 4130000
WTR YR 1979 TOTAL 1507320 MEAN 4130 MAX 8430 MIN 1020 AC-FT 2990000

06294700 BIGHORN RIVER AT BIGHORN, MT--Continued
(National Stream Quality Accounting Network)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1946 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1951 to current year.
WATER TEMPERATURES: April 1949 to September 1951, August 1952 to current year.

INSTRUMENTATION.--Temperature recorder May 2 to September 30, 1974, July 6, 1977 to current year.

REMARKS.--Prior to October 1948, published as "near Custer."

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,940 micromhos July 10, 1961; minimum daily, 384 micromhos June 20, 1951.
WATER TEMPERATURES: Maximum, 30.0°C July 17, 18, 1953; minimum, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,360 micromhos Apr. 12; minimum daily, 769 micromhos Nov. 6.
WATER TEMPERATURES: Maximum, 22.0°C July 9; minimum, 0.0°C on many days during November to March.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)
OCT										
03...	1400	4200	2	890	8.7	17.0	12.5	3.5	10.2	106
NOV										
08...	1500	5410	50	829	8.5	20.5	12.0	1.8	10.1	104
DEC										
03...	0830	4790	0	925	8.3	-20.0	.0	2.5	12.7	96
JAN										
04...	1130	3600	0	870	8.2	-20.0	.0	1.4	13.5	99
FEB										
06...	1130	4400	2	970	8.2	-6.0	.0	2.7	12.3	92
MAR										
06...	1100	4400	3	1020	8.0	5.0	.5	16	11.8	89
APR										
09...	1530	4640	1	1360	8.4	21.0	9.5	28	10.8	106
MAY										
07...	1200	5170	1	1100	8.3	18.0	7.5	17	11.1	103
JUN										
12...	1400	3560	0	1000	8.6	36.0	17.5	26	9.3	107
JUL										
03...	1430	4450	1	938	8.5	33.0	19.5	15	9.8	117
AUG										
17...	1700	2720	1	975	8.7	30.0	21.0	10	11.3	139
SEP										
14...	0900	2280	0	898	8.7	11.0	14.0	2.1	9.3	98

06294700 BIGHORN RIVER AT BIGHORN, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)
OCT										
03...	K9	K2100	310	150	78	27	82	2.0	3.5	160
NOV										
08...	25	K40	280	130	70	25	73	1.9	3.3	150
DEC										
03...	57	260	280	120	69	27	78	2.0	3.7	160
JAN										
04...	K7	K26	280	120	69	26	76	2.0	3.8	160
FEB										
06...	K5	120	320	140	80	30	85	2.1	4.1	180
MAR										
06...	20	22	350	170	87	31	82	1.9	3.8	180
APR										
09...	K6	66	430	220	100	43	130	2.7	4.2	210
MAY										
07...	24	K7	350	170	86	32	94	2.2	3.9	180
JUN										
12...	34	150	330	170	79	31	83	2.0	3.6	160
JUL										
03...	20	41	310	140	79	28	81	2.0	3.6	170
AUG										
17...	27	150	310	140	74	31	97	2.4	3.8	170
SEP										
14...	20	27	300	140	73	29	87	2.2	3.8	160

DATE	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)
OCT									
03...	300	10	.4	9.9	614	607	.84	6960	.29
NOV									
08...	270	8.9	.4	9.9	563	551	.77	8220	.25
DEC									
03...	290	12	.4	9.3	592	586	.81	7660	.29
JAN									
04...	280	8.3	.2	9.7	573	569	.78	5570	.28
FEB									
06...	300	11	.4	11	665	630	.90	7900	.37
MAR									
06...	320	16	.2	9.8	659	660	.90	7830	.31
APR									
09...	470	13	.4	11	918	898	1.25	11500	.28
MAY									
07...	350	13	.4	10	737	698	1.00	10300	.37
JUN									
12...	310	10	.4	6.7	633	620	.86	6080	.16
JUL									
03...	290	12	.4	7.5	620	792	.84	7450	.15
AUG									
17...	330	17	.4	8.1	624	664	.85	4580	.21
SEP									
14...	320	10	.4	7.1	613	627	E.83	3770	.09

06294700 BIGHORN RIVER AT BIGHORN, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C) (00689)
OCT 03...	.01	.52	.53	.44	.03	.01	--	4.0	.3
NOV 08...	.01	.38	.39	.13	.03	.00	4.2	--	--
DEC 03...	.01	.37	.38	--	.02	.00	3.5	--	--
JAN 04...	.00	.25	.25	.29	.04	.03	--	3.9	.2
FEB 06...	.04	.40	.44	.26	.01	.01	3.2	--	--
MAR 06...	.06	.30	.36	.29	.04	.01	4.2	--	--
APR 09...	.01	.46	.47	.28	.04	.01	--	5.1	--
MAY 07...	.01	.42	.43	.25	.02	.01	7.6	--	--
JUN 12...	.00	.69	.69	.43	.05	.00	5.3	--	--
JUL 03...	.05	.19	.24	.10	.04	.01	--	2.6	--
AUG 17...	.01	.55	.56	.46	.02	.02	4.9	--	--
SEP 14...	.01	.41	.42	.39	.01	.01	4.3	--	--

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)
OCT 03...	1400	2	1	0	0	3	--	0	0
JAN 04...	1130	2	2	100	0	0	0	0	0
APR 09...	1530	1	1	0	50	1	<1	10	0
JUL 03...	1430	2	1	100	60	0	<1	10	10

DATE	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO) (01037)	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)
OCT 03...	0	0	14	1	360	20	27	--	20
JAN 04...	2	0	3	1	160	30	5	3	20
APR 09...	3	<3	6	1	1900	0	12	0	110
JUL 03...	0	<3	120	0	760	10	23	0	40

06294700 BIGHORN RIVER AT BIGHORN, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	MANGANESE, DIS- SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) (71900)	MERCURY DIS- SOLVED (UG/L AS HG) (71890)	SELE- NIUM, TOTAL (UG/L AS SE) (01147)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG) (01077)	SILVER, DIS- SOLVED (UG/L AS AG) (01075)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) (01092)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)
OCT									
03...	0	.0	.0	3	2	0	0	20	10
JAN									
04...	30	.0	.0	2	3	1	0	20	0
APR									
09...	40	.1	.0	3	3	0	0	30	<3
JUL									
03...	8	.1	.0	2	2	0	0	70	<3

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	884	854	875	875	909	979	1240	1160	938	844	944	923
2	903	832	876	852	915	985	1320	1130	960	853	936	932
3	912	837	861	848	985	984	1320	1110	920	860	931	930
4	916	837	842	840	982	992	1200	1110	899	852	935	926
5	917	840	853	858	959	990	1200	1100	880	838	911	922
6	918	769	865	856	960	979	1220	1070	872	861	918	92
7	915	789	874	856	935	974	1260	1080	839	869	922	92
8	921	788	859	856	978	948	1240	1050	801	854	919	914
9	918	810	845	850	953	878	1160	1060	769	863	918	910
10	913	808	844	839	950	925	1220	1060	872	870	910	911
11	913	926	850	834	955	990	1200	1070	869	872	920	912
12	920	977	850	824	987	1030	1360	1080	867	873	903	912
13	908	1030	849	856	975	1050	1200	1100	847	876	901	909
14	903	1130	850	872	970	1040	1200	1100	848	881	922	906
15	884	908	845	883	975	1080	1200	1080	817	887	928	905
16	883	868	842	877	1020	1120	1200	1090	798	885	922	901
17	882	851	840	877	992	1150	1190	1030	795	891	924	894
18	884	857	835	816	969	1200	1180	1020	801	887	932	892
19	879	829	845	872	960	1220	1180	1020	831	888	931	890
20	882	858	835	874	953	1220	1220	1020	832	892	938	890
21	879	870	838	889	969	1250	1220	1000	831	900	939	891
22	868	871	832	883	985	1260	1190	1000	846	898	938	886
23	870	872	834	900	991	1280	1170	971	842	892	932	874
24	871	869	831	916	988	1300	1150	964	836	892	923	877
25	854	872	832	909	982	1300	1150	936	835	891	927	880
26	826	873	857	882	998	1310	1150	932	940	903	927	875
27	862	861	836	901	968	1240	1160	903	838	901	927	869
28	857	862	886	891	978	1210	1170	867	840	912	928	869
29	860	848	826	960	---	1240	1180	891	839	909	933	870
30	859	854	892	977	---	1250	1170	880	838	911	926	864
31	870	---	879	934	---	1260	---	842	---	923	922	---
MEAN	888	868	852	876	969	1120	1210	1020	849	882	925	899

WTR YR 1979 MEAN 946 MAX 1360 MIN 769

06294700 BIGHORN RIVER AT BIGHORN, MT--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15.5					---	3.5	8.0				---
2	15.0					---	2.5	6.0				---
3	12.5					---	2.5	6.0				---
4	12.5					---	2.5	6.0				18.0
5	12.0					.0	2.0	8.0				17.5
6	12.0					.0	2.5	9.0				17.0
7	12.5					.0	4.0	7.0				18.0
8	13.5					.0	5.0	---				18.0
9	13.5					.5	6.0	---				18.5
10	13.5					.5	7.0	---				17.0
11	13.5					.5	5.5	---				15.0
12	13.0					1.0	3.5	---				14.5
13	12.0					1.5	4.5	---				13.5
14	11.0					1.5	5.0	---				13.5
15	11.0					2.0	6.0	---				13.5
16	12.5					2.5	7.0	---				13.5
17	12.5					3.5	8.0	---				15.5
18	12.5					2.5	9.0	---				15.5
19	12.5					2.5	9.0	---				16.0
20	13.0					2.0	9.0	---				15.5
21	13.0					2.5	8.5	---				15.5
22	11.5					3.5	8.0	---				15.5
23	11.0					4.5	7.5	---				15.5
24	11.0					4.5	5.5	---				15.0
25	11.0					4.5	7.0	---				15.0
26	10.0					3.5	7.0	---				15.5
27	10.5					3.0	5.5	---				15.5
28	10.5					1.5	7.5	---				---
29	---					2.0	8.0	---				---
30	---					3.0	8.0	---				---
31	---					4.0	---	---				---
MEAN	12.5					2.0	6.0	7.0				15.5

WTR YR 1979 MEAN 8.5 MAX 18.5 MIN .0

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	---	---	---	10.0	8.0	9.0	5.5	2.5	4.0	.0	.0	.0
2	---	---	---	11.0	9.5	10.5	2.5	1.0	1.5	.0	.0	.0
3	---	---	---	11.5	10.0	10.5	1.5	.5	1.0	.0	.0	.0
4	---	---	---	11.0	10.5	10.5	2.5	1.5	2.0	.0	.0	.0
5	---	---	---	10.0	9.0	9.5	3.0	2.0	2.5	.0	.0	.0
6	---	---	---	9.0	8.0	8.5	2.0	1.5	2.0	.0	.0	.0
7	---	---	---	10.0	8.5	9.0	1.0	.5	1.0	.0	.0	.0
8	---	---	---	10.5	10.0	10.0	.5	.0	.0	.0	.0	.0
9	---	---	---	10.5	6.5	9.0	2.0	.0	.5	.0	.0	.0
10	---	---	---	6.0	3.0	4.0	3.5	2.0	3.0	.0	.0	.0
11	---	---	---	3.5	2.0	3.0	3.5	2.5	3.0	.0	.0	.0
12	---	---	---	2.0	.5	1.0	4.5	3.5	4.0	.0	.0	.0
13	---	---	---	.5	.0	.0	3.5	1.5	2.5	.0	.0	.0
14	---	---	---	.5	.0	.0	2.5	1.5	2.0	.0	.0	.0
15	---	---	---	2.5	.0	.5	3.0	2.5	3.0	.0	.0	.0
16	---	---	---	4.5	2.5	3.5	2.5	1.5	2.0	.0	.0	.0
17	---	---	---	6.0	4.5	5.0	1.0	.5	1.0	.0	.0	.0
18	---	---	---	5.0	1.5	3.0	1.5	.5	1.0	.0	.0	.0
19	---	---	---	1.5	.5	1.0	2.5	1.5	2.0	.0	.0	.0
20	---	---	---	1.5	.5	1.0	2.5	1.5	2.0	.0	.0	.0
21	---	---	---	2.0	1.0	1.5	2.5	1.5	2.0	.0	.0	.0
22	---	---	---	3.0	1.5	2.5	2.5	2.0	2.0	.0	.0	.0
23	---	---	---	4.0	2.5	3.0	3.0	2.5	2.5	.0	.0	.0
24	---	---	---	4.5	3.5	4.0	4.0	3.0	3.5	.0	.0	.0
25	---	---	---	4.5	3.0	4.0	3.5	2.0	3.0	.0	.0	.0
26	---	---	---	4.5	3.0	3.5	2.0	1.0	1.5	.0	.0	.0
27	---	---	---	5.5	4.5	5.0	1.0	.5	1.0	.0	.0	.0
28	---	---	---	5.5	5.0	5.5	.5	.0	.0	.0	.0	.0
29	10.5	9.0	10.0	6.0	5.0	5.5	.0	.0	.0	.0	.0	.0
30	10.5	9.0	9.5	6.0	5.5	6.0	.0	.0	.0	.0	.0	.0
31	9.5	8.0	9.0	---	---	---	.0	.0	.0	.0	.0	.0
MONTH	10.5	8.0	9.5	11.5	.0	5.0	5.5	.0	2.0	.0	.0	.0

06294700 BIGHORN RIVER AT BIGHORN, MT--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	.0	.0	.0	.0	.0	.0				---	---	---
2	.0	.0	.0	.0	.0	.0				---	---	---
3	.0	.0	.0	.0	.0	.0				---	---	---
4	.0	.0	.0	.0	.0	.0				---	---	---
5	.0	.0	.0	.0	.0	.0				---	---	---
6	.0	.0	.0	---	.0	---				---	---	---
7	.0	.0	.0	---	---	---				8.0	---	---
8	.0	.0	.0	---	---	---				7.5	6.5	7.0
9	.0	.0	.0	---	---	---				6.0	5.5	6.0
10	.0	.0	.0	---	---	---				7.5	5.0	6.0
11	.0	.0	.0	---	---	---				8.5	6.5	7.5
12	.0	.0	.0	---	---	---				10.0	7.5	9.0
13	.0	.0	.0	---	---	---				10.5	9.0	10.0
14	.0	.0	.0	---	---	---				13.5	9.5	11.5
15	.0	.0	.0	---	---	---				14.0	11.0	12.5
16	.0	.0	.0	---	---	---				14.0	12.5	13.5
17	.0	.0	.0	---	---	---				---	12.0	---
18	.0	.0	.0	---	---	---				---	---	---
19	.0	.0	.0	---	---	---				---	---	---
20	.0	.0	.0	---	---	---				---	---	---
21	.0	.0	.0	---	---	---				15.0	---	---
22	.0	.0	.0	---	---	---				15.5	13.0	14.0
23	.0	.0	.0	---	---	---				16.0	13.0	14.5
24	.0	.0	.0	---	---	---				16.5	14.0	15.0
25	.0	.0	.0	---	---	---				17.5	15.5	16.5
26	.0	.0	.0	---	---	---				18.5	15.5	17.0
27	.0	.0	.0	---	---	---				19.0	16.0	17.5
28	.0	.0	.0	---	---	---				17.5	13.5	15.5
29	---	---	---	---	---	---				13.0	10.5	12.0
30	---	---	---	---	---	---				12.5	9.5	11.0
31	---	---	---	---	---	---				12.5	10.0	11.0
MONTH	.0	.0	.0	.0	.0	.0				19.0	5.0	12.0
		JUNE			JULY			AUGUST			SEPTEMBER	
1	13.0	10.0	11.5	21.5	20.0	20.5	20.0	19.5	20.0	19.0	17.0	18.0
2	16.0	12.0	14.0	20.5	19.5	20.0	20.0	19.5	20.0	19.5	17.5	18.5
3	17.0	14.5	15.5	20.0	19.5	19.5	20.5	19.5	20.0	20.5	18.5	19.5
4	18.0	15.5	17.0	20.5	19.5	20.0	20.5	20.0	20.0	---	19.0	---
5	18.0	16.5	17.0	20.5	19.5	20.0	21.0	20.5	20.5	---	---	---
6	17.0	15.5	16.5	20.5	19.5	20.0	21.0	20.5	21.0	---	---	---
7	15.5	13.0	14.5	20.5	19.5	20.0	21.0	20.0	20.5	---	---	---
8	14.0	11.5	12.5	20.5	20.0	20.0	20.0	19.5	19.5	---	---	---
9	15.0	12.0	13.5	22.0	20.0	21.0	20.0	19.0	19.5	---	---	---
10	16.5	13.5	15.0	21.5	20.5	21.0	20.0	19.5	19.5	---	---	---
11	18.5	15.5	17.0	21.0	20.0	20.5	20.0	19.5	19.5	---	---	---
12	19.0	16.5	18.0	20.5	19.5	20.0	20.0	19.5	19.5	---	---	---
13	20.0	17.5	18.5	20.5	20.0	20.0	19.5	18.5	19.0	---	---	---
14	19.0	17.5	18.5	20.5	19.5	20.0	18.5	16.5	17.5	---	---	---
15	18.5	17.0	18.0	19.5	19.0	19.0	19.5	17.0	18.5	---	---	---
16	18.0	16.5	17.5	20.0	19.0	19.0	20.0	19.0	19.5	---	---	---
17	18.0	17.0	17.5	20.0	19.0	19.5	20.5	19.5	20.0	---	---	---
18	17.5	16.5	17.0	20.5	19.5	20.0	20.0	18.5	19.0	---	---	---
19	16.5	15.5	16.0	20.5	20.0	20.0	20.0	18.5	19.5	---	---	---
20	18.0	15.5	16.5	21.0	20.0	20.5	19.5	18.0	19.0	---	---	---
21	18.5	17.0	18.0	21.0	20.0	20.5	18.5	17.0	18.0	---	---	---
22	18.5	16.5	17.5	21.0	20.0	20.5	19.5	17.5	18.5	---	---	---
23	19.0	16.5	17.5	20.0	19.5	20.0	20.5	18.0	19.5	---	---	---
24	20.0	18.0	19.0	20.0	19.5	20.0	20.5	19.0	19.5	---	---	---
25	20.0	18.5	19.5	20.0	19.5	19.5	18.5	17.5	18.0	---	---	---
26	20.0	19.0	19.5	19.5	19.0	19.5	19.5	17.0	18.0	---	---	---
27	20.0	19.0	19.5	19.5	18.5	19.0	20.0	18.5	19.0	18.0	---	---
28	20.0	19.0	19.5	20.0	19.5	19.5	19.5	18.0	19.0	17.0	15.0	16.0
29	20.5	19.5	20.0	20.0	19.5	20.0	20.0	18.0	19.0	17.0	15.0	16.0
30	21.5	20.5	21.0	20.0	19.5	20.0	20.5	19.0	20.0	16.0	15.0	15.5
31	---	---	---	20.0	19.0	19.5	20.5	18.5	19.5	---	---	---
MONTH	21.5	10.0	17.0	22.0	18.5	20.0	21.0	16.5	19.5	20.5	15.0	17.5
YEAR	22.0	.0	9.5									

06294700 BIGHORN RIVER AT BIGHORN, MT--Continued

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPER-ATURE (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT 03...	1400	12.5	4200	38	431	83
NOV 08...	1500	12.0	5410	79	1150	81
DEC 03...	0830	.0	4790	40	517	--
MAR 06...	1100	.5	4400	76	903	93
APR 09...	1530	9.5	4640	146	1830	84
MAY 07...	1200	7.5	5170	93	1300	75
JUN 12...	1400	17.5	3560	95	913	94
JUL 03...	1430	19.5	4450	71	853	94
AUG 17...	1700	21.0	2720	39	286	92
SEP 14...	0900	14.0	2280	20	123	96

DATE	TIME	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	WEATHER (WMO CODE NUMBER) (00041)
AUG 17...	0800	955	8.4	17.0	17.5	8.0	91	694	0
17...	0900	958	8.4	18.5	18.0	8.2	94	694	0
17...	1000	960	8.5	20.5	18.5	8.5	99	694	0
17...	1100	965	8.5	23.5	18.5	9.2	107	694	0
17...	1200	970	8.5	26.5	19.0	9.4	110	694	0
17...	1300	972	8.5	30.0	19.5	9.9	118	694	0
17...	1400	975	8.5	34.0	20.0	10.4	125	693	0
17...	1500	972	8.6	33.5	20.5	10.8	130	693	1
17...	1600	970	8.6	33.0	20.5	11.1	135	693	1
17...	1700	972	8.6	31.5	21.0	11.2	137	692	1
17...	1800	975	8.7	30.0	21.0	11.2	137	692	1
17...	1900	962	8.7	29.0	21.0	10.9	134	692	1
17...	2000	950	8.7	27.5	21.0	10.6	130	692	1
17...	2100	962	8.7	24.5	20.5	10.2	124	692	1
17...	2200	975	8.7	21.0	20.0	9.7	117	692	0
17...	2300	970	8.7	20.0	20.0	9.4	113	692	0
17...	2400	965	8.7	19.5	19.5	9.1	108	692	0
18...	0100	960	8.7	18.5	19.0	8.8	104	692	0
18...	0200	961	8.7	17.5	19.0	8.6	101	692	0
18...	0300	962	8.7	16.0	19.0	8.4	99	692	0
18...	0400	962	8.7	15.0	19.0	8.2	96	692	0
18...	0500	966	8.7	14.0	18.5	7.9	92	692	0
18...	0600	970	8.7	13.5	18.5	7.8	91	692	0
18...	0700	970	8.7	15.5	18.5	7.8	91	692	0
18...	0800	970	8.7	17.5	18.5	7.9	92	693	0

06294700 BIGHORN RIVER AT BIGHORN, MT--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

PERIPHYTON

DATE	TIME	LENGTH OF EXPOSURE (DAYS) (00022)	PERIPHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M (00573)	PERIPHYTON BIOMASS ASH WEIGHT G/SQ M (00572)	CHLOR-A PERIPHYTON CHROMOGRAPHIC FLUOROM (MG/M2) (70957)	CHLOR-B PERIPHYTON CHROMOGRAPHIC FLUOROM (MG/M2) (70958)	BIOMASS CHLOROPHYLL RATIO PERIPHYTON (UNITS) (70950)
MAY							
07...	1200	28	24.7	22.1	3.04	.000	855
JUL							
03...	1430	21	2.28	2.13	1.02	.570	147

PHYTOPLANKTON

DATE TIME	NOV 8,78 1500	JAN 4,79 1130	MAR 6,79 1100	MAY 7,79 1200
TOTAL CELLS/ML	2000	240	58	430
DIVERSITY: DIVISION	1.2	0.4	0.0	1.2
.CLASS	1.2	0.4	0.0	1.2
..ORDER	1.2	0.6	0.0	1.5
...FAMILY	2.3	0.7	0.0	2.9
....GENUS	2.3	0.7	0.0	3.3

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)								
.CHLOROPHYCEAE								
..CHLOROCOCCALES								
...OOCYSTACEAE								
....ANKISTRODESMUS	--	-	--	-	--	-	14	3
....KIRCHNERIELLA	--	-	--	-	--	-	43	10
....OOCYSTIS	--	-	--	-	--	-	58	13
...SCENEDESMACEAE								
....TETRASTRUM	--	-	--	-	--	-	58	13
..VOLVOCALES								
...CHLAMYDOMONADACEAE								
....CHLAMYDOMONAS	83	4	--	-	--	-	--	-
CHRYSOPHYTA								
.BACILLARIOPHYCEAE								
..CENTRALES								
...COSCINODISCACEAE								
....CYCLOTELLA	--	-	3	1	--	-	29	7
..PENNALES								
...ACHNANTHACEAE								
....ACHNANTHES	14	1	--	-	--	-	--	-
....COCCONEIS	14	1	--	-	--	-	--	-
...CYMBELLACEAE								
....CYMBELLA	83	4	--	-	--	-	--	-
...DIATOMACEAE								
....DIATOMA	140	7	--	-	--	-	14	3
...FRAGILARIACEAE								
....ASTERIONELLA	--	-	--	-	--	-	43	10
....FRAGILARIA	42	2	--	-	--	-	--	-
...GOMPHONEMATACEAE								
....GOMPHONEMA	70	4	5	2	--	-	--	-
...NAVICULACEAE								
....NAVICULA	470#	24	8	3	58#	100	58	13
...NITZSCHIACEAE								
....NITZSCHIA	150	8	3	1	--	-	43	10
...SURIRELLACEAE								
....SURIRELLA	--	-	--	-	--	-	58	13
CYANOPHYTA (BLUE-GREEN ALGAE)								
.CYANOPHYCEAE								
..CHROOCOCCALES								
...CHROOCOCCACEAE								
....ANACYSTIS	--	-	5	2	--	-	--	-
..HORMOGONALES								
...OSCILLATORIACEAE								
....OSCILLATORIA	900#	46	220#	90	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)								
.EUGLENOPHYCEAE								
..EUGLENALES								
...EUGLENACEAE								
....TRACHELOMONAS	--	-	--	-	--	-	14	3

06294700 BIGHORN RIVER AT BIGHORN, MT--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

PHYTOPLANKTON

DATE	JUN 12,79	JUL 3,79	AUG 17,79	SEP 14,79
TIME	1400	1430	1700	0900
TOTAL CELLS/ML	290	310	280	630
DIVERSITY: DIVISION	0.8	1.7	0.9	1.3
.CLASS	0.8	1.7	0.9	1.3
..ORDER	0.8	1.8	1.2	1.7
...FAMILY	1.4	2.7	1.5	2.0
....GENUS	1.4	2.7	1.5	2.3

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)								
.CHLOROPHYCEAE								
..CHLOROCOCCALES								
...OOCYSTACEAE								
....ANKISTRODESMUS	--	-	13	4	--	-	--	-
....TETRAEDRON	--	-	--	-	13	5	--	-
..VOLVOCALES								
...CHLAMYDOMONADACEAE								
....CARTERIA	--	-	--	-	--	-	14	2
....CHLAMYDOMONAS	26	9	26	8	13	5	240#	39
...VOLVOCACEAE								
....PANDORINA	210#	73	--	-	210#	73	--	-
CHRYSOPHYTA								
.BACILLARIOPHYCEAE								
..CENTRALES								
...COSCINODISCACEAE								
....CYCLOTELLA	--	-	--	-	13	5	230#	36
....MELOSIRA	--	-	--	-	--	-	14	2
..PENNALES								
...ACHNANTHACEAE								
....ACHNANTHES	--	-	--	-	--	-	14	2
....COCCONEIS	13	5	--	-	--	-	--	-
...CYMBELLACEAE								
....CYMBELLA	--	-	--	-	--	-	14	2
...DIATOMACEAE								
....DIATOMA	--	-	13	4	--	-	--	-
...GOMPHONEMATACEAE								
....GOMPHONEMA	--	-	13	4	--	-	--	-
...NAVICULACEAE								
....NAVICULA	26	9	65#	21	--	-	43	7
...NITZSCHIACEAE								
....NITZSCHIA	--	-	52#	17	13	5	29	5
CRYPTOPHYTA (CRYPTOMONADS)								
.CRYPTOPHYCEAE								
..CRYPTOMONADALES								
...CRYPTOCHRYSIDACEAE								
....CHROOMONAS	--	-	13	4	26	9	--	-
...CRYPTOMONADACEAE								
....CRYPTOMONAS	--	-	13	4	--	-	14	2
CYANOPHYTA (BLUE-GREEN ALGAE)								
.CYANOPHYCEAE								
..CHROOCOCCALES								
...CHROOCOCCACEAE								
....ANACYSTIS	--	-	100#	33	--	-	--	-
..HORMOGONALES								
...OSCILLATORIACEAE								
....SPIRULINA	--	-	--	-	--	-	14	2
EUGLENOPHYTA (EUGLENOIDS)								
.EUGLENOPHYCEAE								
..EUGLENALES								
...EUGLENACEAE								
....EUGLENA	13	5	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

06294940 SARPY CREEK NEAR HYSHAM, MT

LOCATION.--Lat 46°14'12", long 107°08'03", in SE¼SE¼ sec.30, T.6 N., R.37 E., Treasure County, Hydrologic Unit 10100001, on left bank 100 ft (30 m) upstream from bridge on FAS Route 415, 0.8 mi (1.3 km) upstream from Hysham Canal, and 5.5 mi (8.8 km) southeast of Hysham.

DRAINAGE AREA.--453 mi^2 (1,173 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1973 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 2,680 ft (817 m), from topographic map.

REMARKS.--Water-discharge records poor. Diversions for irrigation of about 970 acres (3.93 km^2) above station.

AVERAGE DISCHARGE.--6 years, 9.73 ft^3/s (0.276 m^3/s), 7,050 acre-ft/yr (8.69 m^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 428 ft^3/s (12.1 m^3/s) Mar. 4, 1975, gage height, 12.43 ft (3.789 m); no flow at times most years.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 100 ft^3/s (2.83 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Mar. 16	1100	*419	11.9	*12.23	3.728	Mar. 26	0300	209	5.92	9.46	2.883

Minimum daily discharge, 0.17 ft^3/s (0.005 m^3/s) Sept. 29, 30.

DISCHARGE, STREAM (CUBIC FEET PER SECOND), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.3	2.7	2.8	2.6	2.4	3.3	56	24	16	5.0	1.8	.92
2	2.9	2.5	2.7	2.7	2.4	3.2	51	23	14	4.7	1.6	.92
3	2.5	2.4	2.7	2.7	2.6	3.1	48	23	13	4.3	1.5	.84
4	2.8	4.0	2.7	2.5	2.8	3.2	45	21	13	4.0	1.4	.77
5	2.4	4.3	2.6	2.3	3.1	5.0	42	22	12	4.4	1.5	.70
6	2.4	3.0	2.5	2.4	3.3	6.0	38	28	11	6.3	1.4	.49
7	2.1	2.5	2.4	2.5	3.6	13	41	35	11	5.6	1.3	.43
8	2.3	2.4	2.7	2.4	3.4	25	47	29	11	4.6	1.3	.49
9	2.3	2.2	3.2	2.2	3.4	22	49	24	16	4.0	1.2	.49
10	2.5	2.0	3.2	2.0	3.4	20	45	24	13	3.6	1.2	.43
11	2.4	2.0	3.5	2.2	3.3	31	45	23	11	2.9	1.1	.43
12	2.3	2.1	3.4	2.4	3.3	60	47	23	9.8	2.5	1.1	.43
13	2.3	2.1	5.0	2.3	3.2	120	51	23	8.9	2.3	1.1	.49
14	2.3	2.2	7.0	2.2	3.1	232	50	22	8.4	2.1	1.2	.49
15	2.5	2.2	6.6	2.6	3.0	311	44	19	7.9	1.8	1.4	.49
16	2.5	2.2	5.0	3.1	3.1	351	40	18	7.6	1.7	1.4	.43
17	2.7	2.2	3.4	3.1	3.1	385	39	15	7.2	1.4	1.3	.37
18	2.7	2.1	3.2	3.0	3.2	305	37	16	7.2	1.4	1.3	.43
19	2.7	2.0	3.2	2.9	3.3	203	33	13	7.5	1.3	1.2	.43
20	2.9	1.8	3.3	3.0	3.4	115	31	13	7.6	1.3	1.1	.37
21	2.1	1.5	3.4	3.0	3.4	104	29	14	7.5	1.4	.92	.37
22	3.0	1.7	3.5	3.0	3.3	114	28	13	7.9	1.5	1.0	.32
23	1.9	2.0	3.4	3.0	3.3	141	28	12	7.9	1.4	.92	.32
24	1.9	2.2	3.3	3.2	3.3	125	29	12	6.9	1.4	.84	.32
25	2.0	2.4	3.1	3.2	3.3	142	28	9.8	6.4	2.8	1.1	.32
26	2.0	2.7	3.0	3.1	3.3	164	26	11	5.7	4.3	1.3	.37
27	2.0	2.9	2.9	2.9	3.3	91	26	11	5.9	3.8	1.3	.23
28	2.0	3.0	2.8	2.7	3.3	81	26	11	6.0	2.7	1.2	.32
29	2.0	3.0	2.7	2.6	---	69	25	12	5.9	2.1	1.2	.17
30	2.7	2.9	2.6	2.5	---	62	25	14	5.5	1.9	1.3	.17
31	2.4	---	2.5	2.4	---	63	---	16	---	1.8	1.0	---
TOTAL	74.8	73.2	104.3	82.7	88.9	3372.8	1149	573.8	278.7	90.3	38.48	13.75
MEAN	2.41	2.44	3.36	2.67	3.18	109	38.3	18.5	9.29	2.91	1.24	.46
MAX	3.3	4.3	7.0	3.2	3.6	385	56	35	16	6.3	1.8	.92
MIN	1.9	1.5	2.4	2.0	2.4	3.1	25	9.8	5.5	1.3	.84	.17
AC-FT	148	145	207	164	176	6690	2280	1140	553	179	76	27

CAL YR 1978 TOTAL 5515.59 MEAN 15.1 MAX 340 MIN .00 AC-FT 10940
WTR YR 1979 TOTAL 5940.73 MEAN 16.3 MAX 385 MIN .17 AC-FT 11780

06294940 SARPY CREEK NEAR HYSHAM, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1975 to current year.

REVISIONS.--The concentration of dissolved lead for Mar. 23, 1978 (1420 hours), was found in error and have been deleted.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L) (00310)
OCT										
05...	1140	2.4	0	2370	8.2	8.5	8.5	8.0	74	--
26...	0900	2.4	--	2630	8.4	7.0	6.0	--	--	--
DEC										
14...	1105	7.0	3	3380	8.1	5.0	.0	12.8	97	--
FEB										
08...	1025	3.4	0	3500	8.2	-18.0	.0	10.6	79	--
MAR										
17...	1100	392	60	927	8.2	5.0	1.5	10.4	82	4.8
APR										
12...	1240	46	2	2840	8.3	2.0	4.5	11.0	94	--
MAY										
10...	0905	23	0	3170	8.5	10.0	8.0	10.0	93	--
JUN										
05...	1040	12	2	3100	8.3	23.0	18.5	7.6	90	--
JUL										
17...	1030	1.4	0	3300	8.5	29.0	18.0	7.8	89	--
SEP										
12...	1100	.42	3	2630	8.3	14.0	13.0	8.6	89	--

DATE	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)
OCT										
05...	560	140	89	83	370	6.8	9.5	420	--	670
26...	630	93	95	95	420	7.3	6.7	540	4.2	900
DEC										
14...	1000	440	130	170	460	6.3	12	580	--	1400
FEB										
08...	770	330	110	120	490	7.7	8.4	440	--	1300
MAR										
17...	260	110	48	34	94	2.5	9.4	150	--	290
APR										
12...	970	500	140	150	360	5.0	6.8	470	--	1200
MAY										
10...	1100	590	140	180	450	5.9	11	500	--	1200
JUN										
05...	830	770	68	160	410	6.2	9.8	--	--	1200
JUL										
17...	820	330	96	140	540	8.2	9.2	490	--	1400
SEP										
12...	510	51	71	8.	440	8.5	8.8	460	--	910

06294940 SARPY CREEK NEAR HYSHAM, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	CHLORIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUORIDE, DIS-SOLVED (MG/L AS F) (00950)	BROMIDE DIS-SOLVED (MG/L AS BR) (71870)	IODIDE, DIS-SOLVED (MG/L AS I) (71865)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)
OCT									
05...	15	.4	.2	.00	9.5	1700	2.31	11.0	.00
26...	34	.4	--	--	9.3	1500	2.04	12.6	.00
DEC									
14...	19	.3	--	--	12	2550	3.47	46.2	.19
FEB									
08...	17	.3	.1	.02	14	2320	3.16	21.3	.50
MAR									
17...	7.4	.1	.0	.00	7.8	581	.79	615	.17
APR									
12...	16	.3	.1	.01	7.6	2170	2.95	270	.17
MAY									
10...	17	.3	--	--	--	--	--	--	.00
JUN									
05...	--	.4	--	--	4.7	--	2.99	71.3	.01
JUL									
17...	17	.4	--	--	4.1	2500	3.40	9.45	.02
SEP									
12...	14	.4	.1	.00	5.5	1810	2.46	2.05	.02

DATE	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C) (00689)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
OCT									
05...	.01	1.2	1.2	.04	--	13	.8	300	80
26...	.00	.60	.60	.03	.01	--	--	360	50
DEC									
14...	.03	.50	.53	.02	--	--	--	510	40
FEB									
08...	.13	.35	.48	.01	--	7.1	.4	400	20
MAR									
17...	.23	1.1	1.3	.07	--	10	5.6	140	50
APR									
12...	.03	.52	.55	.01	--	15	28	440	20
MAY									
10...	.01	.63	.64	.03	--	--	--	550	10
JUN									
05...	.03	.81	.84	.03	--	--	--	560	40
JUL									
17...	.04	.53	.57	.07	--	--	--	610	4
SEP									
12...	.11	.52	.63	.02	--	7.8	.6	370	10

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)
MAR												
17...	1100	3	2	0	0	1	0	20	0	20	3	4800
SEP												
12...	1100	2	2	0	0	0	0	20	10	2	1	270

06294940 SARPY CREEK NEAR HYSHAM, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) (01051)	LEAD, DIS- SOLVED (UG/L AS PB) (01049)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) (01055)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) (71900)	MERCURY DIS- SOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI) (01067)	NICKEL, DIS- SOLVED (UG/L AS NI) (01065)	SELE- NIUM, TOTAL (UG/L AS SE) (01147)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) (01092)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)
MAR												
17...	15	5	500	60	.1	.0	17	4	0	0	60	40
SEP												
12...	7	0	70	40	.1	.0	18	0	1	1	10	10

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1979

DATE	TIME	TEMPER- ATURE (DEG C) (00010)	STREAM- FLOW, INSTAN- TANEOUS (CFS) (00061)	SEDI- MENT, SUS- PENDED (MG/L) (80154)	SEDI- MENT DIS- CHARGE, SUS- PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT						
05...	1140	9.5	2.4	24	.16	--
DEC						
14...	1105	.0	7.0	47	.89	--
FEB						
08...	1025	.0	3.4	20	.18	--
MAR						
17...	1100	1.5	392	388	411	98
APR						
12...	1240	4.5	46	124	15	--
MAY						
10...	0905	8.0	23	62	3.9	--
JUN						
05...	1040	10.5	12	156	5.1	--
JUL						
17...	1030	18.0	1.4	126	.48	--
SEP						
12...	1100	13.0	.42	72	.08	--

06294980 EAST FORK ARMELLS CREEK NEAR COLSTRIP, MT

LOCATION.--Lat 45°58'42", long 106°38'38", in SE¼SW¼SW¼ sec.28, T.3 N., R.41 E., Rosebud County, Hydrologic Unit 10100001, on private road bridge, 0.9 mi (1.4 km) downstream from Corral Creek, and 6.7 mi (10.8 km) north of Colstrip.

DRAINAGE AREA.--97.3 mi² (252.0 km²) revised.

PERIOD OF RECORD.--Water years 1975 to current year.

REMARKS.--Scheduled samplings were not possible during periods of no flow.

REVISIONS.--The concentrations of dissolved cadmium and dissolved lead for July 11, 1978 (1625 hours) were found in error and have been deleted.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPECIFIC CONDUCTANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	OXYGEN DEMAND, BIOCHEMICAL, 5 DAY (MG/L) (00310)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)
OCT 03...	1355	.51	3	5380	7.7	13.5	11.5	9.4	96	--	2300	1800
DEC 12...	1410	1.9	1	4800	8.3	4.0	.0	10.4	78	--	2100	1700
MAR 12...	1020	56	1	1440	8.0	12.0	1.0	10.0	79	3.7	580	440
APR 10...	1540	4.5	61	4210	8.4	3.0	9.5	11.4	113	--	2000	200
MAY 08...	1405	3.0	3	4520	8.2	7.0	9.0	10.2	99	--	2100	1700
JUN 06...	0835	1.1	0	4450	8.0	14.0	17.5	6.6	77	--	--	--

DATE	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY (MG/L AS CACO3) (00410)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	BROMIDE DISSOLVED (MG/L AS BR) (71870)	IODIDE, DISSOLVED (MG/L AS I) (71865)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)
OCT 03...	200	440	520	4.7	18	510	2700	59	.3	.3	.02	12
DEC 12...	200	390	430	4.1	20	400	2600	49	.7	--	--	17
MAR 12...	76	95	99	1.8	9.8	140	600	13	.1	.1	.00	7.7
APR 10...	240	330	350	3.4	3.1	400	2300	39	.3	.2	.01	1.3
MAY 08...	150	420	400	3.8	16	420	2600	40	.2	--	--	3.9
JUN 06...	190	--	410	--	17	390	2700	42	.3	--	--	1.7

DATE	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITROGEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC DISSOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUSPENDED TOTAL (MG/L AS C) (00689)	BORON, DISSOLVED (UG/L AS B) (01020)	IRON, DISSOLVED (UG/L AS FE) (01046)
OCT 03...	4260	5.79	5.87	.00	.01	.86	.87	.03	--	.2	960	30
DEC 12...	3950	5.37	20.3	.85	.19	.62	.81	.02	--	--	890	50
MAR 12...	985	1.34	149	.36	.41	.52	.93	.17	12	1.4	260	40
APR 10...	3180	4.32	38.6	.00	.02	.69	.71	.05	15	--	810	40
MAY 08...	3880	5.28	31.4	.01	.02	.73	.75	.03	--	--	920	50
JUN 06...	--	--	--	.02	.03	.82	.85	.04	--	--	1100	30

06294980 EAST FORK ARMELLS CREEK NEAR COLSTRIP, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)
MAR 12...	1020	1	1	0	0	0	0	0	0	7	1	920

DATE	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
MAR 12...	14	0	310	270	.0	.0	15	0	1	0	30	20

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPER-ATURE (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT 03...	1355	11.5	.51	52	.07	--
DEC 12...	1410	.0	1.9	14	.07	--
MAR 12...	1020	1.0	56	47	7.1	91
APR 10...	1540	9.5	4.5	14	.17	--
MAY 08...	1405	9.0	3.0	36	.29	--
JUN 06...	0835	17.5	1.1	43	.13	--

06294995 ARMELLS CREEK NEAR FORSYTH, MT

LOCATION.--Lat 46°14'59", long 106°48'22", in SE¼NW¼NE¼ sec.26 T.6 N., R.39 E., Rosebud County, Hydrologic Unit 10100001, on right bank 300 ft (90 m) upstream from bridge on Interstate Highway I-94, 2 mi (3 km) upstream from mouth, and 6 mi (10 km) southwest of Forsyth.

DRAINAGE AREA.--370 mi² (958 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1974 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 2,560 ft (780 m), from topographic map.

REMARKS.--Water-discharge records poor. No gage-height record Jan. 26 to Mar. 11. Diversions of about 200 acre (809,000 m²) above station.

AVERAGE DISCHARGE.--5 years, 9.99 ft³/s (0.283 m³/s) 7,240 acre-ft/yr (8.93 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, about 960 ft³/s (27.2 m³/s) Mar. 13, 1979; maximum gage height observed, 6.62 ft (2.018 m) Mar. 12, 1978 (backwater from ice); no flow at times most years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, about 960 ft³/s (27.2 m³/s) Mar. 13, only peak above base of 130 ft³/s (3.68 m³/s); maximum gage height, 5.72 ft (1.743 m) Mar. 13 (backwater from ice); no flow Jan. 31 to Mar. 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.2	1.3	2.3	2.0	.00	.00	25	10	9.3	.60	1.6	.37
2	1.6	1.3	2.2	2.0	.00	.00	23	10	7.3	.51	1.6	.44
3	1.6	1.3	2.5	2.0	.00	.00	21	9.3	5.8	.44	1.3	.30
4	1.1	1.3	2.5	1.8	.00	.00	21	8.8	5.4	.44	1.3	.25
5	1.1	1.6	2.3	1.4	.00	2.0	20	9.3	4.6	.51	1.1	.20
6	1.1	1.6	2.0	1.6	.00	10	18	9.3	4.2	.51	1.1	.16
7	1.1	1.6	1.6	1.6	.00	20	21	11	4.6	.51	1.1	.12
8	.90	1.8	2.3	1.8	.00	14	27	12	5.4	.51	1.1	.12
9	.90	1.8	2.9	1.8	.00	9.0	26	10	10	.60	1.1	.07
10	.74	1.6	3.0	1.6	.00	50	21	8.8	5.8	.51	1.9	.07
11	.44	1.6	3.2	1.6	.00	400	23	8.3	3.5	.44	1.9	.06
12	.44	1.8	3.1	1.5	.00	650	25	8.3	2.4	.44	1.1	.06
13	.51	2.0	3.2	1.4	.00	750	26	8.8	2.1	.44	.90	.05
14	.60	2.1	3.2	1.2	.00	400	29	8.8	1.8	.37	.74	.05
15	.20	2.3	3.1	1.4	.00	250	41	7.3	1.6	.37	.90	.06
16	2.1	2.5	2.9	1.4	.00	180	32	1.6	1.6	.44	1.1	.06
17	.60	3.0	2.8	1.6	.00	150	24	3.5	1.1	.44	.74	.06
18	.60	2.3	2.7	1.6	.00	119	24	4.6	1.1	.44	.74	.06
19	.60	1.8	2.7	1.8	.00	82	20	5.4	1.1	.37	.74	.06
20	.74	1.4	2.8	2.0	.00	56	20	5.0	1.1	.37	.51	.06
21	2.1	1.2	3.0	2.1	.00	47	18	5.0	.90	.37	.51	.05
22	2.1	1.4	3.1	1.2	.00	51	16	4.2	1.1	.37	.60	.05
23	1.6	1.6	3.0	.80	.00	52	15	4.2	1.1	.37	.60	.05
24	1.3	2.0	2.8	1.0	.00	50	14	4.2	1.1	.44	.60	.06
25	2.1	2.0	2.7	.80	.00	59	16	3.5	.90	.51	.60	.07
26	2.4	2.2	2.5	.60	.00	50	15	3.8	.60	.60	.60	.07
27	1.8	2.4	2.4	.40	.00	36	14	4.2	.60	1.1	.51	.07
28	1.3	2.8	2.4	.40	.00	29	12	3.2	.90	1.9	.51	.07
29	1.8	2.7	2.3	.20	---	26	12	3.8	.60	2.1	.44	.07
30	1.3	2.5	2.1	.10	---	26	11	3.8	.60	1.9	.37	.09
31	1.3	---	1.8	.00	---	26	---	6.8	---	1.9	.37	---
TOTAL	39.27	57.0	81.6	40.90	.00	3594.00	630	206.8	88.20	20.62	28.26	3.33
MEAN	1.27	1.90	2.63	1.32	.000	116	21.0	6.67	2.94	.67	.91	.11
MAX	3.2	3.0	3.2	2.1	.00	750	41	12	10	2.1	1.9	.44
MIN	.20	1.2	1.8	.00	.00	.00	11	1.6	.60	.37	.37	.05
AC-FT	78	113	162	81	.00	7130	1250	410	175	41	56	6.6

CAL YR 1978 TOTAL 5864.60 MEAN 16.1 MAX 509 MIN .02 AC-FT 11630
WTR YR 1979 TOTAL 4790.26 MEAN 13.1 MAX 750 MIN .00 AC-FT 9500

06294995 ARMELLS CREEK NEAR FORSYTH, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1975 to current year.

REMARKS.--Scheduled samplings not possible during periods of no flow.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L) (00310)	HARD-NESS (MG/L AS CACO3) (00900)
OCT											
05...	0845	1.5	1	4050	8.4	5.0	8.0	9.6	88	--	900
26...	1230	2.4	--	5250	8.4	6.5	8.0	--	--	--	1000
DEC											
14...	0920	3.4	3	5300	8.3	5.0	.0	13.0	98	--	1200
MAR											
11...	1500	356	0	1300	--	21.0	.5	11.4	86	6.1	230
APR											
12...	0950	24	70	4200	8.5	1.0	3.0	11.2	91	--	1100
MAY											
07...	1700	11	1	5800	8.3	9.0	13.0	9.3	97	--	1400
JUN											
05...	1305	4.7	2	5650	8.4	24.0	22.0	8.6	108	--	1400
JUL											
17...	1220	.42	1	3780	8.7	30.0	26.0	9.0	122	--	560
AUG											
08...	1345	1.1	1	3290	8.8	36.0	25.0	12.7	167	--	400
SEP											
12...	1430	.06	1	2650	8.8	17.5	18.5	10.4	120	--	380

DATE	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)
OCT										
05...	470	130	140	670	9.7	12	--	--	430	--
26...	450	110	180	1100	15	13	660	5	550	4.3
DEC										
14...	790	150	210	860	11	16	--	--	450	--
MAR										
11...	230	41	31	89	2.6	7.6	--	--	--	--
APR										
12...	780	140	180	620	8.2	9.1	--	--	310	--
MAY										
07...	810	130	250	850	10	11	--	--	540	--
JUN										
05...	980	140	260	900	10	11	--	--	440	--
JUL										
17...	170	58	100	730	13	8.5	--	--	390	--
AUG										
08...	46	53	64	600	13	7.9	--	--	350	--
SEP										
12...	32	54	60	500	11	6.7	--	--	350	--

06294995 ARMELLS CREEK NEAR FORSYTH, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	BROMIDE DIS-SOLVED (MG/L AS BR) (71870)	IODIDE, DIS-SOLVED (MG/L AS I) (71865)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)
OCT										
05...	1900	27	.3	.1	.01	--	--	--	--	--
26...	2700	33	.4	--	--	6.7	4400	4470	5.98	28.5
DEC										
14...	2600	35	.3	--	--	15	--	4160	5.66	38.2
MAR										
11...	280	130	.2	.2	.01	6.0	--	586	.80	563
APR										
12...	2000	25	.3	.1	.00	4.8	--	3170	4.31	205
MAY										
07...	2600	33	.3	--	--	2.4	--	4200	5.71	125
JUN										
05...	2900	39	.4	--	--	2.3	--	4520	6.15	57.4
JUL										
17...	1700	21	.6	--	--	5.5	--	2860	3.89	3.24
AUG										
08...	1400	21	.5	--	--	6.7	--	2360	3.21	7.01
SEP										
12...	1200	28	.5	.1	.00	5.2	--	2070	2.82	.34

DATE	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C) (00689)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
OCT										
05...	.00	.03	.66	.69	.04	--	12	.7	480	30
26...	.01	.01	.99	1.0	.04	.00	--	--	600	30
DEC										
14...	.05	.01	.45	.46	.02	--	--	--	550	70
MAR										
11...	.35	.35	.44	.79	.32	--	12	--	130	380
APR										
12...	.02	.03	.61	.64	.03	--	.0	.9	480	20
MAY										
07...	.02	.03	.72	.75	.03	--	--	--	600	20
JUN										
05...	.02	.03	.74	.77	.02	--	28	--	690	40
JUL										
17...	.02	.07	.37	.44	.04	--	--	--	540	20
AUG										
08...	.00	.01	.65	.66	.02	--	--	--	450	10
SEP										
12...	.02	.03	.47	.50	.01	--	11	.3	380	0

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)
MAR												
11...	1500	2	5	0	0	0	--	10	0	34	8	7400
SEP												
12...	1430	5	4	0	0	0	0	10	0	2	1	270

06294995 ARMELLS CREEK NEAR FORSYTH, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
MAR												
11...	--	--	240	200	.1	.0	21	2	1	0	60	70
SEP												
12...	6	0	60	20	.1	.0	8	3	1	1	10	20

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPER-ATURE (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT						
05...	0845	8.0	1.5	54	.22	--
DEC						
14...	0920	.0	3.4	77	.71	--
MAR						
11...	1500	.5	356	439	422	83
APR						
12...	0950	3.0	24	130	8.4	98
MAY						
07...	1700	13.0	11	48	1.4	--
JUN						
05...	1305	22.0	4.7	94	1.2	--
JUL						
17...	1220	26.0	.42	24	.03	--
AUG						
08...	1345	25.0	1.1	78	.23	--
SEP						
12...	1430	18.5	.06	68	.01	--

06295000 YELLOWSTONE RIVER AT FORSYTH, MT

LOCATION.--Lat 46°15'58", long 106°41'24", in NE¼NW¼NW¼ sec.23, T.6 N., R.40 E., Rosebud County, Hydrologic Unit 10100001, on right bank 0.3 mi (0.5 km) downstream from U.S. Highway 12 bridge, at intake for Forsyth water supply, at Forsyth, and at mile 239.3 (385.0 km).

DRAINAGE AREA.--40,339 mi² (104,478 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 16, 1921, to September 30, 1923 (no winter records). October 1977 to current year. Miscellaneous discharge measurements were made in 1974 to 1976 and are in files of Helena district office.

GAGE.--Water-stage recorder. Altitude of gage is 2,510 ft (765 m), from topographic map. July 1921 to March 1922, nonrecording gage on discontinued highway bridge 10 ft (0.3 m) downstream from gage at different datum. March 1922 to September 1923, nonrecording gage on discontinued highway bridge 10 ft (0.3 m) downstream from gage at datum 2 ft (0.6 m) higher.

REMARKS.--Water-discharge records good except those for winter period, which are poor. Diversions for irrigation of about 838,000 acres (3,390 km²) above station. Flow regulated to some extent by Bighorn Lake, usable capacity 1,356,000 acre-ft (1.67 km³), on Bighorn River. Small diversion dam about 4,200 ft (1,280 m) below station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 110,000 ft³/s (3,120 m³/s), revised, May 21, 1978, gage height, 14.53 ft (4.429 m); minimum daily, 1,400 ft³/s (39.6 m³/s) Nov. 23, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of 1918 reached a stage of about 20 ft (6.1 m), datum used in 1921, information from local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 36,100 ft³/s (1,020 m³/s) June 16, gage height, 7.24 ft (2.207 m); minimum, 3,470 ft³/s (98.3 m³/s) Nov. 13; gage height, 1.62 ft (0.494 m), result of freezeup.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11500	9560	8900	4900	5200	8000	10600	11000	25000	27200	10300	7260
2	11200	9850	8900	5000	5200	7600	10500	11500	21100	27000	9650	7130
3	11000	10600	8900	5200	5400	7600	10200	12300	18400	25400	9080	7090
4	10900	10200	8600	5400	5400	7400	9890	12700	16600	23300	8610	6960
5	10800	10100	8100	5600	5600	7400	9560	12600	16200	22000	8250	6650
6	10700	10000	7800	5600	5800	8000	9940	12500	19200	21300	7930	6360
7	10700	9990	7400	5700	6000	8600	10300	13000	24400	20000	7700	6270
8	10700	10000	7400	5800	6200	9000	10400	13800	30000	18500	7300	6020
9	10500	10200	7400	5900	6400	10000	11100	14100	27400	17800	7090	5900
10	10300	10600	7400	6000	6400	11000	11900	13600	22600	17100	7090	5780
11	10200	8000	7600	6000	6200	14000	12700	12700	19500	16000	7040	5700
12	10300	5200	7800	6200	6200	14000	13200	11500	18100	15200	7040	5700
13	10500	4800	8000	6400	6400	16000	12400	10500	19400	14400	7040	6010
14	10500	4600	8200	6300	6600	22000	11000	10200	23700	13900	7170	5830
15	10500	4800	8400	6200	6500	25000	10600	9990	30500	13600	8200	5840
16	10500	8200	8400	6400	6400	30000	10500	9940	35400	13100	9180	5880
17	10400	8600	7700	6800	6400	31000	10600	10400	31800	12500	9080	5790
18	10400	8400	7000	7000	6600	30000	10500	11500	27900	11900	8340	5690
19	10400	8800	7200	7200	6800	29000	11000	13800	27100	11400	7930	5490
20	10400	9200	7600	7000	7200	26000	11900	15000	30100	10900	7840	5290
21	10300	8400	7600	7000	7400	20000	12200	15800	31800	10600	7880	5180
22	10200	6900	8000	6800	7600	15000	11700	16200	30100	10400	7970	5100
23	10100	6800	8200	6600	7400	13600	10800	16700	29400	10300	7970	5040
24	10100	6600	8400	6400	7400	13300	10500	18500	28100	10300	7930	5010
25	9990	8700	8400	6200	7400	13300	11100	20800	26100	10700	7930	4930
26	9890	8600	8400	6000	7800	13700	11200	23100	27600	10400	7970	4840
27	9890	9200	8200	5800	8000	14000	11100	24700	28600	10400	8380	4840
28	9270	9100	7800	5700	8200	12400	11000	27300	29200	10500	8290	4790
29	7350	9100	7000	5600	---	11300	10800	30900	28500	11100	8200	4720
30	9650	9000	6000	5300	---	10400	10700	34800	27800	11800	7790	4640
31	9650	---	5200	5200	---	10200	---	30900	---	10900	7520	---
TOTAL	318790	254100	241800	187200	184100	468800	329890	502330	771600	[illegible]900	249690	171930
MEAN	10280	8470	7800	6039	6575	15120	11000	16200	25720	[illegible]160	8055	5731
MAX	11500	10600	8900	7200	8200	31000	13200	34800	35400	27200	10300	7260
MIN	7350	4600	5200	4900	5200	7400	9560	9940	16200	10300	7040	4720
AC-FT	632300	504000	479600	371300	365200	929900	654300	996400	1530000	932000	495300	341000

CAL YR 1978 TOTAL 5538240 MEAN 15170 MAX 97000 MIN 4000 AC-FT 10990000
WTR YR 1979 TOTAL 4150130 MEAN 11370 MAX 35400 MIN 4600 AC-FT 8232000

06295000 YELLOWSTONE RIVER AT FORSYTH, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1974 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: March 1978 to current year.
SUSPENDED-SEDIMENT DISCHARGE: March 1978 to current year.

REMARKS.--No samples obtained Nov. 1 to Mar. 8 and no loads computed.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum observed, 26.0°C July 27, 1978, Aug. 3, 7, 1979.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 4,010 mg/L May 19, 1978; minimum daily mean, 17 mg/L Sept. 30, 1979.
SEDIMENT LOADS: Maximum daily, 761,000 tons (690,000 megagrams) May 20, 1978; minimum daily, 222 tons (201 megagrams) Sept. 30, 1979.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum observed, 26.0°C Aug. 3, 7.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 1,230 mg/L Mar. 14; minimum daily mean, 17 mg/L Sept. 30.
SEDIMENT LOADS: Maximum daily, 84,600 tons (76,700 megagrams) May 30; minimum daily, 222 tons (201 megagrams) Sept. 30.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS (MG/L AS CACO3) (00900)
OCT												
04...	0930	10800	2	638	8.7	9.0	12.0	9.6	100	--	--	220
13...	1130	10400	--	--	--	10.0	11.0	--	--	K16	K8	--
NOV												
06...	1630	10000	1	707	8.7	14.0	7.5	11.2	102	--	--	250
DEC												
05...	1230	8900	0	850	8.3	-6.0	.0	13.4	99	--	--	260
20...	1600	7600	--	--	--	-2.0	.0	--	--	K2	114	--
JAN												
04...	1530	5400	0	950	8.2	-15.0	.0	13.3	97	--	--	300
30...	1600	5300	--	--	--	-19.5	.0	--	--	K5	K6	--
FEB												
06...	1500	5800	1	885	8.0	-12.0	.0	11.3	84	--	--	290
MAR												
06...	1430	8000	1	898	8.1	10.0	.0	11.6	86	--	--	290
APR												
10...	1300	11900	2	1110	8.4	6.0	9.0	9.9	95	--	--	350
MAY												
08...	1300	13600	3	776	8.4	10.0	9.5	10.5	101	--	--	230
JUN												
13...	1230	19400	0	428	8.4	39.0	21.5	7.8	97	--	--	140
JUL												
04...	1045	23300	53	318	8.2	21.0	20.0	6.0	95	--	--	95
AUG												
15...	0800	7860	0	765	8.5	17.0	17.5	8.3	94	--	--	230
SEP												
13...	1630	5980	1	680	8.7	18.0	17.0	10.1	113	--	--	210

06295000 YELLOWSTONE RIVER AT FORSYTH, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM AD-SORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY (MG/L AS CACO3) (00410)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)
OCT												
04...	82	56	20	57	1.7	3.1	140	160	8.3	.5	10	400
13...	--	--	--	--	--	--	--	--	--	--	--	--
NOV												
06...	95	62	22	60	1.7	3.5	150	210	9.3	.4	9.3	467
DEC												
03...	100	64	25	71	1.9	4.0	160	240	9.8	.4	12	523
20...	--	--	--	--	--	--	--	--	--	--	--	--
JAN												
04...	130	71	29	78	2.0	4.3	170	290	9.4	.2	12	596
30...	--	--	--	--	--	--	--	--	--	--	--	--
FEB												
06...	110	71	27	70	1.8	4.2	180	250	10	.4	14	555
MAR												
06...	120	73	27	73	1.9	3.8	170	260	17	.5	12	569
APR												
10...	170	77	39	110	2.5	4.1	180	370	12	.4	11	732
MAY												
08...	84	54	24	67	1.9	3.4	150	220	10	.4	11	480
JUN												
13...	49	33	13	31	1.2	1.2	67	110	5.1	.3	10	256
JUL												
04...	24	24	8.5	21	.9	1.9	71	70	4.0	.3	10	182
AUG												
15...	83	57	22	64	1.8	3.6	150	240	9.8	.4	9.7	497
SEP												
13...	64	51	21	58	1.7	3.7	150	190	8.6	.5	58	481

DATE	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITROGEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITROGEN, KJELDAHL, TOTAL (MG/L AS N) (00625)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC DISSOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUSPENDED TOTAL (MG/L AS C) (00689)	BORON, DISSOLVED (UG/L AS B) (01020)	IRON, DISSOLVED (UG/L AS FE) (01046)
OCT											
04...	.54	11700	.17	.02	.42	.44	.03	6.3	.3	410	20
13...	--	--	--	--	--	--	--	--	--	--	--
NOV											
06...	.64	12600	.16	.01	.26	.27	.00	--	--	140	80
DEC											
03...	.71	12600	.45	.02	.29	.31	.03	--	--	170	0
20...	--	--	--	--	--	--	--	--	--	--	--
JAN											
04...	.81	8690	.53	.03	.28	.31	.04	4.1	.4	160	30
30...	--	--	--	--	--	--	--	--	--	--	--
FEB											
06...	.75	8690	.55	.09	.20	.29	.03	--	--	190	10
MAR											
06...	.77	12300	.50	.10	.26	.36	.05	--	--	180	10
APR											
10...	1.00	23500	.27	.02	.44	.46	.09	--	--	190	10
MAY											
08...	.65	17900	.22	.01	.33	.34	.03	--	--	150	10
JUN											
13...	.35	13400	.14	.00	.49	.49	.10	--	--	10	20
JUL											
04...	.25	11500	.12	.04	.16	.20	.06	2.3	.5	50	30
AUG											
15...	.68	10600	.22	.01	.37	.38	.04	--	--	150	10
SEP											
13...	E.65	7770	.04	.03	.61	.64	.03	3.0	.4	160	30

06295000 YELLOWSTONE RIVER AT FORSYTH, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)
JUL												
04...	1045	5	4	0	<1	0	2	10	0	12	0	2100
SEP												
13...	1630	6	7	0	<1	0	<1	10	10	3	1	330

DATE	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
JUL												
04...	14	0	70	1	.1	.0	8	2	0	0	50	<3
SEP												
13...	4	0	30	5	.1	.0	4	0	1	1	5	10

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15.5					---	---	10.5	15.0	22.0	23.0	18.0
2	15.0					---	---	11.5	---	22.0	24.0	25.0
3	15.0					---	---	12.0	14.0	21.0	26.0	25.0
4	14.5					---	---	9.0	20.0	21.5	---	19.5
5	15.0					---	2.5	---	20.0	21.5	---	18.0
6	15.0					---	---	10.5	18.0	21.0	25.0	20.0
7	14.5					---	---	10.0	16.0	21.5	26.0	20.0
8	15.5					---	---	9.0	19.0	22.0	25.0	19.0
9	16.0					---	10.0	8.5	---	22.0	24.0	19.0
10	15.0					---	8.0	8.0	20.0	24.0	25.0	20.0
11	14.5					---	7.0	7.0	22.0	24.0	25.0	18.0
12	13.5					---	5.0	---	23.0	25.0	---	17.0
13	15.5					---	2.5	12.0	21.0	25.0	22.0	18.0
14	15.0					0.0	---	14.0	21.0	24.0	18.0	17.0
15	14.5					1.5	8.0	17.0	18.5	23.0	22.0	15.0
16	14.5					1.5	9.0	16.0	16.5	24.0	21.0	25.0
17	14.0					---	11.0	17.0	17.0	---	23.0	18.0
18	14.0					---	13.0	18.0	14.0	---	23.0	18.0
19	14.5					2.5	10.5	---	17.0	---	20.0	18.0
20	14.0					2.0	11.5	17.0	15.5	---	18.0	19.0
21	14.5					2.5	9.0	18.5	17.0	---	22.5	18.0
22	14.0					2.0	10.0	18.5	16.0	---	22.0	19.0
23	13.5					2.5	10.0	19.0	12.5	---	24.0	---
24	13.5					2.5	9.0	19.5	18.0	24.5	23.0	17.0
25	13.0					4.5	---	20.0	19.0	23.0	18.0	18.0
26	13.0					6.0	9.0	21.0	19.0	23.0	19.0	18.0
27	13.5					6.0	12.5	---	18.5	23.0	21.0	18.0
28	13.0					5.0	---	---	22.0	22.0	20.0	18.0
29	13.0					7.0	12.0	---	21.0	23.0	22.0	16.0
30	13.0					6.5	13.0	12.5	18.0	22.0	23.0	17.0
31	13.0					6.0	---	12.0	---	23.0	19.0	---
MEAN	14.5					4.0	9.0	14.0	18.0	23.0	22.5	19.0

WTR YR 1979 MEAN 15.5 MAX 26.0 MIN 0.0

06295000 YELLOWSTONE RIVER AT FORSYTH, MT--Continued

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	121	3760									---	---
2	107	3240									---	---
3	89	2640									---	---
4	95	2800									---	---
5	94	2740									---	---
6	85	2460									---	---
7	73	2110									---	---
8	74	2140									---	---
9	73	2070									295	7960
10	85	2360									448	13300
11	91	2510									269	10200
12	77	2140									231	8730
13	45	1280									429	18500
14	36	1020									1230	73100
15	22	624									969	65400
16	26	737									668	54100
17	58	1630									800	67000
18	80	2250									825	66800
19	53	1490									835	65400
20	70	1970									961	67500
21	56	1560									1140	61600
22	64	1760									770	31200
23	78	2130									650	23900
24	70	1910									475	17100
25	69	1860									570	20500
26	68	1820									535	19800
27	69	1840									385	14600
28	52	1300									185	6190
29	36	714									200	6100
30	24	625									218	6120
31	---	---									225	6200
TOTAL	---	57490									---	731300
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	169	4840	44	1310	385	26000	163	12000	253	7040	40	784
2	140	3970	61	1890	317	18100	142	10400	157	4090	39	751
3	177	4870	82	2720	135	6710	153	10500	132	3240	42	804
4	155	4140	74	2540	187	8380	159	10000	109	2530	33	620
5	118	3050	70	2380	276	12100	143	8490	61	1360	24	431
6	113	3030	79	2670	459	23800	148	8510	54	1160	26	446
7	109	3030	83	2910	629	41400	154	8320	68	1410	25	423
8	128	3590	128	4770	614	49700	171	8540	59	1160	29	471
9	156	4680	127	4830	446	33000	160	7690	42	804	26	414
10	208	6680	98	3600	220	13400	155	7160	41	785	25	390
11	225	7720	95	3260	198	10400	135	5830	46	874	21	323
12	209	7450	72	2240	153	7480	120	4920	46	874	18	277
13	185	6190	42	1190	206	10900	125	4860	37	703	21	341
14	175	5200	36	991	317	20300	122	4580	34	658	24	378
15	159	4550	33	890	540	44500	129	4740	45	996	26	410
16	116	3290	36	966	757	72400	102	3610	78	1930	24	381
17	102	2920	42	1180	513	44000	91	3070	62	1520	27	422
18	118	3350	57	1770	288	21700	100	3210	48	1080	25	384
19	112	3330	86	3200	367	26900	71	2190	45	963	22	326
20	146	4690	195	7900	446	36200	84	2470	47	995	24	343
21	193	6360	245	10500	441	37900	75	2150	46	979	23	322
22	169	5340	253	11100	509	41400	109	3060	43	925	28	386
23	119	3470	268	12100	392	31100	80	2220	43	925	25	340
24	89	2520	387	19300	318	24100	90	2500	40	856	19	257
25	103	3090	675	37900	239	16800	105	3030	41	878	19	253
26	76	2300	648	40400	243	18100	74	2080	45	968	21	274
27	56	1740	608	40500	249	19200	75	2110	46	1040	20	261
28	53	1570	666	49100	230	18100	112	3180	46	1030	19	246
29	42	1220	766	63900	209	16100	134	4020	64	1420	19	242
30	48	1390	900	84600	160	12000	112	3570	50	1050	17	222
31	---	---	457	38100	---	---	278	8180	42	853	---	---
TOTAL	---	119570	---	460707	---	762170	---	167190	---	45096	---	11922

TOTAL LOAD FOR YEAR: 2355445 TONS.

06295000 YELLOWSTONE RIVER AT FORSYTH, MT--Continued

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPER-ATURE (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
NOV						
06...	1630	7.5	10000	37	999	81
APR						
10...	1300	9.0	11900	196	6300	79
MAY						
08...	1300	9.5	13800	122	4550	56
JUN						
13...	1230	21.5	19400	177	9270	53
JUL						
04...	1045	20.0	23300	145	9120	59
AUG						
15...	0800	17.5	7880	58	1230	85
SEP						
13...	1630	17.0	5980	22	355	90

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

PERIPHYTON

DATE	TIME	LENGTH OF EXPU-SURE (DAYS) (00022)	PERI-PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M (00573)	PERI-PHYTON BIOMASS ASH WEIGHT G/SQ M (00572)	CHLOR-A PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2) (70957)	CHLOR-B PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2) (70958)	BIOMASS CHLORO-PHYLL RATIO PERI-PHYTON (UNITS) (70950)
OCT							
04...	0930	29	.472	.315	.550	.180	285
JUL							
04...	1045	21	1.89	1.73	.850	.000	188

06295000 YELLOWSTONE RIVER AT FORSYTH, MT--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

PHYTOPLANKTON

DATE TIME	OCT 13,78 1130	DEC 20,78 1000	JAN 30,79 1000
TOTAL CELLS/ML	1300	430	51
DIVERSITY: DIVISION	0.7	0.0	0.0
.CLASS	0.7	0.0	0.0
..ORDER	1.5	0.3	0.0
...FAMILY	2.6	2.7	2.2
....GENUS	2.9	3.0	2.2

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...OOCYSTACEAE						
....OOCYSTIS	41	3	--	-	--	-
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CHLAMYDOMONAS	10	1	--	-	--	-
CHRYSOPHYTA						
.BACILLARIOPHYCEAE						
..CENTRALES						
...COSCINODISCACEAE						
....CYCLOTELLA	120	10	23	5	--	-
....STEPHANODISCUS	210#	16	--	-	--	-
..PENNALES						
...ACHNANTHACEAE						
....ACHNANTHES	--	-	23	5	--	-
....COCCONEIS	41	3	39	9	--	-
....RHOICOSPHENIA	21	2	23	5	--	-
...CYMBELLACEAE						
....CYMBELLA	10	1	31	7	5	10
...DIATOMACEAE						
....DIATOMA	21	2	78#	18	5	10
...FRAGILARIACEAE						
....SYNEDRA	62	5	23	5	--	-
...GOMPHONEMATACEAE						
....GOMPHONEMA	--	-	16	4	10#	20
...NAVICULACEAE						
....NAVICULA	140	11	100#	24	15#	30
...NITZSCHIACEAE						
....NITZSCHIA	460#	35	70#	16	15#	30
...SURIRELLACEAE						
....SURIRELLA	31	2	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..HORMOGONALES						
...NOSTOCACEAE						
....ANABAENA	120	10	--	-	--	-

06295110 ROSEBUD CREEK AT KIRBY, MT

LOCATION.--Lat 45°19'59", long 106°59'10", in SW¼SE¼NW¼ sec.8, T.6 S., R.39 E., Big Horn County, Hydrologic Unit 10100003, at private bridge at Kirby, 50 ft (15 m) downstream from confluence of Cache Creek.

DRAINAGE AREA.--116 mi² (300 km²).

PERIOD OF RECORD.--Water years 1978 to September 1979 (discontinued).

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	OXYGEN DEMAND, BIOCHEMICAL, 5 DAY (MG/L) (00310)
OCT 03...	1055	17	8	955	8.1	14.0	8.0	10.0	97	--
25...	1230	19	--	950	8.1	8.0	6.0	--	--	--
DEC 12...	1105	15	71	970	8.1	2.0	.0	12.6	98	--
FEB 06...	1120	13	1	1000	8.1	-3.0	.0	11.0	86	--
MAR 27...	1115	51	9	872	8.4	10.0	2.0	11.4	96	--
APR 10...	1210	110	60	756	8.5	3.0	6.5	9.4	89	2.4
MAY 08...	1110	75	3	830	8.5	5.0	9.5	9.4	95	--
JUN 19...	1045	28	1	885	8.3	15.0	13.5	8.8	97	--
JUL 23...	1110	12	61	887	8.3	22.0	17.0	7.8	92	--
SEP 10...	1205	6.6	3	945	8.1	15.5	14.5	8.2	91	--

DATE	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY (MG/L AS CACO3) (00410)
OCT 03...	520	120	85	75	26	.5	7.6	400
25...	530	110	83	79	30	.6	7.3	410
DEC 12...	520	130	90	72	26	.5	7.2	390
FEB 06...	480	110	77	71	27	.5	6.9	370
MAR 27...	480	150	83	65	20	.4	5.3	330
APR 10...	380	110	78	50	16	.4	4.8	270
MAY 08...	380	61	67	52	21	.5	5.0	320
JUN 19...	470	110	80	66	23	.5	6.4	360
JUL 23...	480	100	77	71	26	.5	7.6	380
SEP 10...	480	77	76	71	32	.6	7.3	400

06295110 ROSEBUD CREEK AT KIRBY, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	BROMIDE DIS-SOLVED (MG/L AS BR) (71870)	IODIDE, DIS-SOLVED (MG/L AS I) (71865)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)
OCT									
03...	190	4.2	.6	.1	.00	17	646	.88	29.7
25...	170	4.2	.6	--	--	17	642	.85	32.0
DEC									
12...	180	3.9	.4	--	--	18	632	.86	25.6
FEB									
06...	170	3.9	.5	.0	.06	18	597	.81	21.0
MAR									
27...	160	3.3	.4	--	--	12	548	.75	75.5
APR									
10...	140	2.7	.4	.0	.00	10	456	.62	135
MAY									
08...	140	3.0	.4	--	--	11	492	.67	99.6
JUN									
19...	150	3.3	.4	--	--	13	559	.76	42.3
JUL									
23...	140	3.6	.6	--	--	15	569	.77	18.4
SEP									
10...	160	3.8	.6	.0	.00	18	607	.83	10.8

DATE	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C) (00689)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
OCT									
03...	.08	.03	.37	.40	.04	6.4	.4	110	20
25...	.07	.01	.88	.89	.02	--	--	120	20
DEC									
12...	.29	.01	.30	.31	.02	--	--	120	10
FEB									
06...	.36	.03	.42	.45	.01	3.3	.4	100	10
MAR									
27...	.34	.04	.63	.67	.02	--	--	80	20
APR									
10...	.49	.06	1.5	1.6	.30	7.1	5.0	90	30
MAY									
08...	.07	.01	.43	.44	.08	--	--	60	30
JUN									
19...	.11	.02	.67	.69	.06	--	--	0	10
JUL									
23...	.12	.06	.81	.87	.02	--	--	130	10
SEP									
10...	.15	.03	.00	.00	.04	--	--	110	20

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)
APR												
10...	1210	4	2	0	0	1	0	20	0	18	0	12000
SEP												
10...	1245	2	4	0	<1	2	1	20	10	3	5	1000

DATE	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
APR												
10...	18	3	450	60	.1	.0	12	2	1	0	90	20
SEP												
10...	6	0	70	30	.0	.0	7	1	1	1	10	5

06295110 ROSEBUD CREEK AT KIRBY, MT--Continued

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPERATURE (DEG C) (00010)	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT						
03...	1055	8.0	17	36	1.7	--
DEC						
12...	1105	.0	15	46	1.9	--
FEB						
06...	1120	.0	13	30	1.1	--
MAR						
27...	1115	2.0	51	246	34	94
APR						
10...	1210	6.5	110	624	185	94
MAY						
08...	1110	9.5	75	168	34	82
JUN						
19...	1045	13.5	26	92	7.0	95
JUL						
23...	1110	17.0	12	95	3.1	--
SEP						
10...	1245	14.5	6.6	115	2.0	88

06295250 ROSEBUD CREEK NEAR COLSTRIP, MT

LOCATION.--Lat 45°46'03", long 106°34'10", in SE¼SW¼NE¼ sec.8, T.1 S., R.42 E., Rosebud County, Hydrologic Unit 10100003, on left bank 10 ft (3 m) downstream from bridge on FAS Route 315, 1.5 mi (2.4 km) downstream from Lee Coulee, and 8.4 mi (13.5 km) southeast of Colstrip.

DRAINAGE AREA.--799 mi² (2,069 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1974 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 3,000 ft (914 m), from topographic map.

REMARKS.--Water-discharge records poor. Diversions for irrigation of about 800 acres (3.24 km²) above station.

AVERAGE DISCHARGE.--5 years, 65.2 ft³/s (1.846 m³/s), 47,240 acre-ft/yr (58.2 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 605 ft³/s (17.1 m³/s) May 21, 1978, gage height, 9.03 ft (2.752 m); minimum daily, 7.5 ft³/s (0.21 m³/s) Sept. 14, 15, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 260 ft³/s (7.36 m³/s) Apr. 22, gage height, undetermined, only peak above base of 150 ft³/s (4.25 m³/s); minimum daily, 23 ft³/s (0.65 m³/s) Jan. 13.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	48	49	45	30	25	29	125	217	132	68	43	32
2	47	48	44	30	26	29	125	212	141	66	43	32
3	45	50	47	29	27	30	125	207	141	64	42	32
4	44	48	47	25	31	32	125	202	133	61	41	31
5	42	46	45	27	30	34	123	198	122	58	39	31
6	41	45	43	29	29	37	123	197	115	56	39	30
7	43	46	46	32	27	40	132	192	111	54	38	30
8	45	47	49	31	28	45	140	188	107	53	38	29
9	43	49	49	30	27	50	140	184	103	52	37	29
10	45	47	48	30	27	58	142	187	103	50	36	28
11	46	46	47	28	27	66	145	184	104	50	36	27
12	47	45	46	26	27	80	165	181	104	49	36	27
13	45	45	47	23	27	100	180	178	100	48	35	25
14	45	43	47	24	27	92	200	175	96	46	35	25
15	45	45	48	27	26	92	207	172	92	45	35	26
16	45	49	49	29	27	86	193	169	87	45	35	26
17	46	46	49	30	28	78	183	166	84	45	35	26
18	47	42	50	31	30	78	183	162	82	44	35	26
19	48	42	51	35	29	78	196	158	81	43	35	26
20	50	39	52	39	28	79	228	155	79	43	35	27
21	50	41	52	35	28	76	251	150	79	43	34	27
22	51	43	51	32	28	80	254	146	78	42	33	27
23	52	45	49	32	31	86	250	142	77	41	33	27
24	52	45	50	31	34	90	250	138	74	42	33	26
25	53	47	50	30	33	86	247	134	72	43	33	27
26	52	49	49	29	33	92	229	129	70	44	32	27
27	52	51	44	28	31	92	226	125	70	48	32	26
28	51	50	41	26	31	96	223	118	71	45	32	26
29	52	50	34	25	---	98	217	116	78	43	31	26
30	50	47	28	25	---	100	218	120	70	43	31	26
31	50	---	29	25	---	120	---	126	---	43	31	---
TOTAL	1472	1385	1426	903	802	2229	5545	5128	2856	1517	1103	830
MEAN	47.5	46.2	46.0	29.1	28.6	71.9	185	165	95.2	48.9	35.6	27.7
MAX	53	51	52	39	34	120	254	217	141	68	43	32
MIN	41	39	28	23	25	29	123	116	70	41	31	25
AC-FT	2920	2750	2830	1790	1590	4420	11000	10170	5660	3010	2190	1650

CAL YR 1978 TOTAL 29846 MEAN 81.8 MAX 560 MIN 17 AC-FT 59200
WTR YR 1979 TOTAL 25196 MEAN 69.0 MAX 254 MIN 23 AC-FT 49980

06295250 ROSEBUD CREEK NEAR COLSTRIP, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1975 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	OXYGEN DEMAND, BIOCHEMICAL, 5 DAY (MG/L) (00310)
OCT 04...	1010	46	3	1310	8.3	12.0	10.5	9.2	91	--
DEC 13...	1050	45	0	1410	8.1	-4.0	.0	12.4	93	--
FEB 07...	1105	33	88	1360	7.9	2.0	.0	9.4	73	--
APR 11...	1115	143	70	1310	8.6	4.0	6.5	9.8	90	1.4
MAY 09...	1045	185	74	1080	8.6	3.0	8.5	9.1	86	--
JUN 06...	1125	106	2	1100	8.5	21.0	18.0	7.4	87	--
JUL 18...	1220	44	1	1180	8.6	33.0	21.0	7.5	92	--
AUG 09...	1300	37	0	1180	8.6	23.5	21.0	7.7	94	--
SEP 13...	1200	25	1	1270	8.5	16.0	13.5	9.4	99	--

DATE	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY (MG/L AS CACO3) (00410)	SULFATE DISSOLVED (MG/L AS SO4) (00945)
OCT 04...	610	200	83	99	72	1.3	10	410	320
DEC 13...	690	220	93	110	80	1.3	10	470	350
FEB 07...	650	180	95	100	75	1.3	9.0	470	350
APR 11...	640	240	95	98	75	1.3	7.9	400	380
MAY 09...	570	200	87	85	55	1.0	7.4	370	280
JUN 06...	540	170	76	85	54	1.0	7.8	370	300
JUL 18...	520	180	56	92	69	1.3	9.2	340	350
AUG 09...	540	180	62	94	70	1.3	10	360	340
SEP 13...	550	160	62	97	80	1.5	11	390	410

06295250 ROSEBUD CREEK NEAR COLSTRIP, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	BROMIDE DIS-SOLVED (MG/L AS BR) (71870)	IODIDE, DIS-SOLVED (MG/L AS I) (71865)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)
OCT 04...	6.0	.6	.1	.00	16	857	1.17	106	--
DEC 13...	6.1	.6	--	--	20	953	1.30	116	.33
FEB 07...	6.1	.5	.0	.02	20	938	1.28	83.6	.43
APR 11...	5.6	.5	.0	.00	11	914	1.24	353	.18
MAY 09...	4.3	.5	--	--	11	753	1.02	376	.12
JUN 06...	5.2	.5	--	--	12	763	1.04	218	.20
JUL 18...	6.2	.6	--	--	14	802	1.09	95.3	.02
AUG 09...	5.3	.6	--	--	14	813	1.11	81.2	.01
SEP 13...	5.3	.6	.1	.00	15	916	1.25	61.8	.01

DATE	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C) (00689)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
OCT 04...	--	--	--	--	12	.9	200	50
DEC 13...	.06	.35	.41	.02	--	--	190	40
FEB 07...	.12	.54	.66	.04	5.1	.9	170	10
APR 11...	.02	1.4	1.4	.42	7.7	4.3	170	10
MAY 09...	.02	.94	.96	.24	--	--	150	40
JUN 06...	.03	1.1	1.1	.24	--	--	160	10
JUL 18...	.03	.62	.65	.13	--	--	250	10
AUG 09...	.01	.59	.60	.08	--	--	190	<10
SEP 13...	.02	.41	.43	.03	6.1	.2	200	<10

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)
APR 11...	1115	3	2	0	0	--	1	20	10	24	2	15000
SEP 13...	1200	2	2	0	<1	0	<1	0	10	1	1	120

06295250 ROSEBUD CREEK NEAR COLSTRIP, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
APR												
11...	--	2	480	20	.1	.0	20	2	0	0	70	20
SEP												
13...	3	0	0	10	.1	.0	5	0	1	1	0	<3

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPER-ATURE (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT						
04...	1010	10.5	46	59	7.3	--
FEB						
07...	1105	.0	33	89	7.9	95
APR						
11...	1115	6.5	143	836	323	97
MAY						
09...	1045	8.5	185	539	269	96
JUN						
06...	1125	18.0	106	544	155	97
JUL						
18...	1220	21.0	44	198	24	93
AUG						
09...	1300	21.0	37	184	18	98
SEP						
13...	1200	13.5	25	79	5.3	--

06295420 SNIDER CREEK NEAR BRANDENBERG, MT

LOCATION.--Lat 45°55'39", long 106°23'02", in S½NE¼ sec.16, T.2 N., R.43 E., Rosebud County, Hydrologic Unit 10090102, at county road crossing, 0.3 mi (0.5 km) upstream from mouth, and 7.8 mi (12.6 km) northwest of Brandenberg.

DRAINAGE AREA.--12.67 mi² (32.82 km²).

PERIOD OF RECORD.--Water years 1978 to current year.

REMARKS.--Scheduled samplings were not possible during periods of no flow.

06296003 ROSEBUD CREEK AT MOUTH, NEAR ROSEBUD, MT

LOCATION.--Lat 46°15'53", long 106°28'30", in SW¼NW¼NE¼ sec.21, T.6 N., R.42 E., Rosebud County, Hydrologic Unit 10100003, on left bank 0.4 mi (0.6 km) upstream from bridge on Interstate Highway I-94, 0.8 mi (1.3 km) upstream from mouth, and 1.6 mi (2.6 km) southwest of Rosebud.

DRAINAGE AREA.--1,302 mi² (3,372 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1974 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 2,480 ft (756 m), from topographic map.

REMARKS.--Water-discharge records good except those for winter period, which are poor. Diversions for irrigation of about 2,000 acres (8.09 km²).

AVERAGE DISCHARGE.--5 years, 75.6 ft³/s (2.141 m³/s), 54,770 acre-ft/yr (67.5 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,620 ft³/s (74.2 m³/s) May 19, 1978, gage height, 6.78 ft (2.067 m), from rating curve extended above 1,500 ft³/s (42.5 m³/s); minimum discharge, 1.7 ft³/s (0.048 m³/s) Aug. 12, 1976, gage height, 0.85 ft (0.259 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 810 ft³/s (22.9 m³/s) Mar. 13, only peak above base of 350 ft³/s (9.91 m³/s); maximum gage height, 5.83 ft (1.777 m) Mar. 13 (backwater from ice); minimum discharge, 5.5 ft³/s (0.16 m³/s) Sept. 28, 29, gage height, 0.74 ft (0.226 m).

DISCHARGE, STREAM (CUBIC FEET PER SECOND), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	52	49	48	30	26	32	167	207	122	65	27	22
2	49	50	46	31	26	31	159	203	118	65	24	19
3	47	50	45	31	27	29	147	199	121	56	27	21
4	43	50	48	30	28	30	146	198	124	54	33	22
5	43	50	48	26	32	35	139	198	122	47	36	21
6	43	49	46	28	31	44	138	198	121	47	38	16
7	43	49	44	30	30	60	152	192	133	38	38	15
8	44	48	47	33	28	80	157	188	122	38	38	15
9	44	49	50	32	29	110	146	183	113	40	33	21
10	44	50	50	31	28	150	141	181	109	46	31	19
11	44	48	49	31	28	270	139	178	105	37	24	18
12	44	47	48	29	28	450	157	176	94	24	24	17
13	44	46	47	27	28	670	160	178	99	27	30	17
14	44	46	48	24	28	620	216	174	99	33	25	18
15	44	44	48	25	28	540	218	171	98	39	23	19
16	44	46	49	28	27	500	199	167	92	40	25	19
17	44	51	50	30	28	540	198	166	87	40	27	19
18	44	47	50	31	29	470	194	159	81	35	22	19
19	44	43	52	32	31	415	185	155	78	33	27	20
20	44	43	53	36	30	224	181	152	77	33	29	19
21	44	40	54	40	29	207	161	149	75	35	29	19
22	44	42	54	36	29	244	185	144	73	39	27	19
23	45	44	53	33	29	262	194	141	77	39	28	19
24	47	46	51	33	32	255	205	136	78	40	28	18
25	48	46	52	32	35	262	213	134	76	41	27	17
26	49	48	52	31	34	247	218	131	73	45	25	17
27	49	50	50	30	34	171	222	125	71	40	26	14
28	49	53	45	29	32	166	226	108	69	37	26	7.0
29	50	52	42	27	---	169	218	103	67	34	25	5.8
30	50	52	35	26	---	174	209	112	64	40	24	6.2
31	50	---	29	26	---	176	---	128	---	37	23	---
TOTAL	1417	1428	1483	938	824	7653	5410	5034	2838	1264	869	518.0
MEAN	45.7	47.6	47.8	30.3	29.4	246	180	162	94.6	40.8	28.0	17.3
MAX	52	53	54	40	35	670	226	207	133	65	38	22
MIN	43	40	29	24	26	29	138	103	64	24	22	5.8
AC-FT	2810	2830	2940	1860	1630	15140	10730	9980	5630	2510	1720	1030

CAL YR 1978 TOTAL 43823.2 MEAN 120 MAX 1810 MIN 6.2 AC-FT 86920
WTR YR 1979 TOTAL 29656.0 MEAN 81.2 MAX 670 MIN 5.8 AC-FT 58820

06296003 ROSEBUD CREEK AT MOUTH, NEAR ROSEBUD, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1975 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1978 to September 1979.
WATER TEMPERATURE: October 1978 to September 1979.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,820 micromhos Jan. 16; minimum daily, 332 micromhos Mar. 9.
WATER TEMPERATURES: Maximum daily, 27.5°C Aug. 5; minimum daily 0.0°C on many days during November to December.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L) (00310)
OCT										
04...	1440	45	63	1320	8.3	16.0	12.0	9.8	79	--
25...	1130	50	--	1460	8.6	8.5	7.5	--	--	--
DEC										
13...	1525	48	0	1740	8.3	-5.0	.0	13.2	98	--
FEB										
07...	1445	30	76	1590	8.2	.0	.0	8.6	65	--
MAR										
12...	1610	558	3	444	8.9	8.0	.5	11.2	85	5.6
APR										
11...	1530	137	68	1730	8.5	1.0	6.0	10.6	94	--
MAY										
09...	1415	182	3	1180	8.6	10.0	9.0	9.8	92	--
JUN										
07...	0905	129	2	1160	8.2	13.0	15.5	8.2	89	--
JUL										
19...	0845	34	0	1400	8.5	25.5	20.5	7.6	91	--
SEP										
14...	1030	18	0	1580	8.5	19.0	13.0	9.8	100	--

DATE	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)
OCT									
04...	500	200	38	98	94	1.8	11	300	370
25...	640	220	73	110	110	1.9	11	400	450
DEC									
13...	680	210	92	110	120	2.0	11	470	480
FEB									
07...	680	200	89	110	96	1.6	9.6	480	400
MAR									
12...	110	17	21	13	44	1.9	5.0	89	100
APR									
11...	650	240	78	110	130	2.2	8.5	410	540
MAY									
09...	530	160	70	86	65	1.2	7.4	370	340
JUN									
07...	530	170	70	87	71	1.3	8.2	360	340
JUL									
19...	550	220	56	99	100	1.9	10	330	460
SEP									
14...	610	220	61	110	130	2.3	12	390	520

06296003 ROSEBUD CREEK AT MOUTH, NEAR ROSEBUD, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	CHLORIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUORIDE, DIS-SOLVED (MG/L AS F) (00950)	BROMIDE DIS-SOLVED (MG/L AS BR) (71870)	IODIDE, DIS-SOLVED (MG/L AS I) (71865)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)
OCT									
04...	6.9	.6	.1	.01	16	815	1.11	99.0	.00
25...	7.2	.6	--	--	15	1050	1.37	136	.01
DEC									
13...	7.3	.6	--	--	18	1120	1.52	145	.27
FEB									
07...	6.3	.5	.0	.01	21	1020	1.39	82.6	.50
MAR									
12...	4.2	.2	.0	.01	5.1	246	.33	371	.40
APR									
11...	7.1	.5	.0	.00	12	1130	1.54	418	.25
MAY									
09...	4.6	.5	--	--	11	807	1.10	397	.08
JUN									
07...	5.5	.5	--	--	11	810	1.10	282	.22
JUL									
19...	7.0	.6	--	--	14	945	1.29	86.8	.01
SEP									
14...	6.7	.6	.1	.00	13	1090	1.48	53.0	.02

DATE	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C) (00689)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
OCT								
04...	.01	.66	.67	.07	8.5	1.2	190	30
25...	.01	.46	.47	.04	--	--	220	10
DEC								
13...	.03	.36	.39	.04	--	--	220	40
FEB								
07...	.08	.32	.40	.03	5.2	.6	190	10
MAR								
12...	.20	1.8	2.0	.48	13	6.7	80	170
APR								
11...	.06	.94	1.0	.03	7.2	--	190	10
MAY								
09...	.01	.90	.91	.22	--	--	160	20
JUN								
07...	.02	1.4	1.4	.31	--	--	190	20
JUL								
19...	.02	.52	.54	.12	--	--	260	10
SEP								
14...	.02	.49	.51	.03	7.0	.7	250	<10

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)
MAR												
12...	1610	4	4	0	0	0	1	30	0	38	8	17000
SEP												
14...	1030	2	2	0	<1	0	<1	0	0	2	1	1100

06296003 ROSEBUD CREEK AT MOUTH, NEAR ROSEBUD, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
MAR 12...	--	2	420	80	.1	.0	41	0	1	1	90	30
SEP 14...	3	0	60	9	.0	.0	4	0	1	1	0	<3

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1320	1400	1440	1580	1420	1500	1450	1060	1240	1260	1320	1420
2	1330	1380	1460	1570	1450	1470	1490	1050	1250	1260	1350	1440
3	1340	1400	1490	1570	1530	1470	1520	1040	1230	1250	1340	1450
4	1380	1410	1540	1620	1450	1460	1510	1040	1240	1240	1380	1460
5	1400	1450	1490	1610	1560	1400	1560	1030	1200	1260	1360	1460
6	1430	1420	1550	1630	1540	1420	1550	1040	1140	1280	1340	1480
7	1500	1440	1560	1680	1480	1340	1660	1080	1140	1320	1350	1500
8	1480	1420	1500	1650	1510	913	1560	1080	1100	1320	1360	1510
9	1480	1370	1480	1550	1470	332	1570	1070	1150	1320	1360	1530
10	1470	1350	1560	1680	1420	377	1580	1060	1180	1320	1360	1530
11	1480	1410	1550	1620	1400	418	1560	1080	1200	1310	1350	1530
12	1480	1470	1560	1690	1440	453	1530	1070	1200	1370	1380	1540
13	1490	1500	1510	1770	1430	384	1570	1060	1240	1360	1380	1540
14	1510	1500	1500	1780	1540	373	1620	1070	1240	1380	1380	1540
15	1510	1500	1530	1800	1500	472	1410	1080	1180	1360	1390	1550
16	1500	1510	1500	1820	1440	539	1370	1080	1160	1350	1420	1550
17	1460	1540	1540	1750	1490	602	1290	1080	1150	1350	1420	1550
18	1460	1530	1570	1650	1470	749	1210	1070	1160	1350	1430	1550
19	1460	1490	1580	1750	1460	1000	1170	1070	1180	1360	1420	1550
20	1480	1520	1600	1720	1460	1260	1240	1060	1200	1400	1420	1540
21	1480	1550	1580	1620	1460	1320	1310	1070	1200	1400	1400	1550
22	1480	1580	1580	1630	1440	1180	1290	1080	1220	1390	1400	1550
23	1470	1540	1580	1650	1430	1110	1250	1060	1220	1380	1390	1550
24	1460	1530	1570	1650	1440	1110	1210	1060	1260	1370	1400	1540
25	1460	1570	1530	1560	1530	1120	1180	1070	1220	1380	1400	1540
26	1470	1550	1540	1570	1570	1230	1160	1060	1230	1370	1400	1540
27	1450	1580	1560	1570	1580	1450	1150	1080	1220	1330	1400	1550
28	1460	1570	1570	1570	1540	1520	1160	1110	1220	1320	1420	1600
29	1450	1570	1550	1550	---	1520	1190	1120	1230	1330	1420	1590
30	1450	1560	1550	1550	---	1460	1170	1150	1220	1320	1420	1630
31	1460	---	1570	1550	---	1580	---	1140	---	1310	1420	---
MEAN	1450	1490	1540	1640	1480	1050	1380	1070	1200	1330	1390	1530

WTR YR 1979 MEAN 1380 MAX 1820 MIN 332

06296003 ROSEBUD CREEK AT MOUTH, NEAR ROSEBUD, MT--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14.0	9.0	.0	.5	.5	.5	3.5	11.5	16.0	22.0	25.0	21.0
2	12.0	9.0	.0	.5	.5	.5	4.0	12.0	17.0	23.0	24.5	22.0
3	13.0	8.0	.0	.5	.5	.5	4.0	10.0	18.5	24.5	26.5	23.5
4	12.0	8.0	.0	.5	1.0	1.0	3.0	11.5	19.0	23.0	25.5	22.5
5	12.0	9.0	.0	.5	1.5	1.5	2.0	13.5	19.0	23.5	27.5	22.5
6	12.0	8.0	.0	.5	.5	1.5	3.5	13.0	17.5	24.5	26.5	21.5
7	12.0	7.0	.0	.5	1.0	1.5	5.5	13.0	16.5	27.0	25.0	23.5
8	14.0	9.0	.0	.5	.5	1.5	6.5	9.5	16.5	24.5	24.0	24.5
9	13.0	6.0	.0	.5	1.0	.5	8.5	9.5	16.5	25.5	24.0	23.0
10	14.0	5.0	.0	.5	1.5	1.0	7.5	10.0	18.0	25.5	25.0	18.5
11	12.0	2.0	.0	.5	1.0	1.0	6.0	10.0	17.0	25.5	25.0	18.0
12	11.0	.0	.0	.5	.5	1.0	4.0	9.0	21.5	26.0	22.5	16.5
13	11.0	.0	.0	.5	.5	1.0	5.5	12.0	23.0	24.0	19.5	17.0
14	7.0	.0	.5	.5	.5	1.0	4.5	13.5	20.5	23.5	19.5	17.0
15	10.0	.5	.5	.5	.5	2.0	9.0	15.5	20.0	23.0	22.5	16.0
16	12.0	1.0	.5	.5	.5	3.0	11.0	17.0	18.5	23.5	22.0	19.0
17	10.0	1.0	.0	1.0	.5	3.0	12.5	15.5	19.5	24.5	24.5	19.0
18	11.0	1.0	.0	1.0	1.0	3.0	12.0	16.5	18.5	25.5	22.5	19.0
19	12.0	.5	.0	1.0	1.5	2.5	10.5	15.0	17.0	25.5	22.5	19.0
20	10.0	.0	.0	1.0	1.0	3.5	11.5	14.0	19.0	27.0	22.0	18.5
21	12.0	.0	.0	1.5	.5	4.0	12.0	17.5	19.5	26.5	22.0	19.0
22	10.0	.0	.0	1.0	.5	4.5	12.0	17.0	19.0	25.5	21.5	18.5
23	10.0	.0	.0	1.0	.5	4.0	9.0	18.0	16.0	25.0	23.5	19.0
24	10.0	.0	.5	1.0	.5	6.0	10.0	19.0	21.5	26.5	22.0	18.5
25	10.5	.0	.0	.5	1.0	3.0	10.5	19.5	22.0	23.5	20.0	16.5
26	11.0	.0	.5	1.0	1.0	2.5	10.0	20.5	22.0	22.0	22.0	18.5
27	10.0	.0	.0	.5	.5	2.5	11.5	22.0	21.5	18.5	23.0	19.0
28	9.0	.0	.0	.5	.5	2.5	10.5	17.0	19.0	20.0	23.0	18.0
29	9.0	.0	.0	.5	---	4.0	10.0	14.5	19.5	24.5	23.5	17.0
30	7.0	.0	.0	.5	---	4.0	10.5	16.0	22.5	24.0	23.5	16.5
31	7.0	---	.0	.5	---	4.0	---	13.5	---	21.0	19.0	---
MEAN	11.0	3.0	.0	.5	1.0	2.5	8.0	14.5	19.0	24.0	23.0	19.5

WTR YR 1979 MEAN 10.5 MAX 27.5 MIN .0

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPERATURE (DEG C) (00010)	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT						
04...	1440	12.0	45	117	14	--
DEC						
13...	1525	.0	48	120	16	--
FEB						
07...	1445	.0	30	73	5.9	96
MAR						
12...	1610	.5	558	1060	1600	97
APR						
11...	1530	6.0	137	479	177	99
MAY						
09...	1415	9.0	182	400	197	98
JUN						
07...	0905	15.5	129	651	227	99
JUL						
19...	0845	20.5	34	144	13	98
SEP						
14...	1030	13.0	18	120	5.8	--

06296120 YELLOWSTONE RIVER NEAR MILES CITY, MT

LOCATION.--Lat 46°23'51", long 105°53'36", in SE¼SW¼ sec.31, T.8 N., R.47 E., Custer County, Hydrologic Unit 10100001, at Keogh Bridge, 1.6 mi (2.6 km) upstream from Tongue River, 2.0 mi (3.2 km) west of Miles City, and at mile 183.1 (294.6 km).

DRAINAGE AREA.--42,847 mi² (110,974 km²).

PERIOD OF RECORD.--Water years 1969 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1968 to current year.
WATER TEMPERATURES: October 1968 to current year.

REMARKS.--Water discharge computed by subtracting the discharge of Tongue River at Miles City (station 06308500) from that of Yellowstone River at Miles City (station 06309000). Flow affected by reservoirs and diversions for irrigation upstream from station.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,110 micromhos Apr. 1, 1979; minimum daily, 225 micromhos May 31, 1979.
WATER TEMPERATURES: Maximum daily, 28.5°C Aug. 10, 1978; minimum daily, 0.0°C on many days during winter periods most years.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,110 micromhos Apr. 1; minimum daily, 225 micromhos May 31.
WATER TEMPERATURES: Maximum daily, 27.0°C July 21, 22; minimum daily, 0.0°C on many days during December to March.

REVISIONS.--The concentration of total recoverable lead for June 21, 1978 (1800 hours) was found in error and have been deleted.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	TUR-BID-ITY (JTU) (00070)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)
OCT											
04...	1430	11300	80	635	8.7	15.0	12.5	4	--	10.0	102
10...	1145	10600	1	680	8.6	23.5	14.0	3	--	10.5	111
NOV											
07...	1030	10300	1	735	8.6	6.0	6.5	5	--	10.9	96
13...	1430	5080	73	770	8.6	4.5	.5	5	--	13.6	102
DEC											
04...	1330	8000	83	840	8.4	-1.5	.0	10	--	13.3	100
19...	1315	7300	2	805	8.0	3.5	.5	2	--	13.7	104
JAN											
05...	1000	5520	0	1000	8.0	-30.0	.0	2	--	13.7	100
17...	1430	5700	0	800	8.5	-5.0	.0	9	--	12.2	91
FEB											
07...	1530	6120	76	891	8.1	-12.0	.0	1	--	12.0	90
22...	0750	7530	2	860	7.8	-8.0	.0	5	--	11.4	85
MAR											
07...	1400	9130	2	905	8.1	6.0	1.0	4	--	11.7	90
21...	1600	24400	0	960	8.1	7.0	2.0	310	--	11.9	94
APR											
13...	0715	13500	2	1030	8.3	.0	4.5	130	--	11.2	95
23...	1345	11900	51	932	8.3	--	8.0	34	--	10.4	96
MAY											
11...	0700	12000	51	790	8.3	3.0	8.5	--	16	10.6	98
23...	1230	15800	0	479	7.9	20.5	16.5	--	26	8.8	96
JUN											
15...	0900	24200	1	343	8.3	22.0	20.0	--	16	7.7	91
28...	0740	28800	0	291	8.0	17.0	19.0	--	34	8.1	94
JUL											
05...	1700	22500	1	341	8.3	31.0	23.0	--	19	8.1	101
25...	1345	11000	2	541	8.5	27.5	21.0	--	13	8.2	99
AUG											
15...	1330	7140	0	755	8.5	28.0	20.5	--	14	9.1	109
30...	1000	8480	0	625	8.6	24.0	20.0	--	6.9	8.4	101
SEP											
13...	0900	6030	1	685	8.7	10.0	16.0	--	--	9.1	99

06296120 YELLOWSTONE RIVER NEAR MILES CITY, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	OXYGEN DEMAND, CHEMICAL (HIGH LEVEL) (MG/L) (00340)	COLIFORM, TOTAL, IMMED. (COLS. PER 100 ML) (31501)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM AD-SORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY (MG/L AS CACO3) (00410)
OCT											
04...	15	2500	K1	220	72	56	20	59	1.7	3.1	150
10...	25	K5	<1	--	--	--	--	--	--	--	150
NOV											
07...	24	K10	K4	250	92	63	23	63	1.7	3.4	160
13...	8	K1	K1	--	--	--	--	--	--	--	150
DEC											
04...	7	K50	K3	260	95	61	25	65	1.8	4.4	160
19...	18	K3	K2	--	--	--	--	--	--	--	170
JAN											
05...	15	34	K19	340	150	83	32	86	2.0	4.7	190
17...	8	K57	K14	--	--	--	--	--	--	--	170
FEB											
07...	13	82	28	290	140	70	27	71	1.8	4.1	150
22...	15	<1	--	--	--	--	--	--	--	--	120
MAR											
07...	5	K170	K12	300	120	74	28	71	1.8	3.9	180
21...	41	1200	150	--	--	--	--	--	--	--	150
APR											
13...	16	270	K28	310	140	70	32	94	2.3	3.7	170
23...	98	K100	K14	--	--	--	--	--	--	--	170
MAY											
11...	13	K23	K16	260	110	63	25	68	1.8	3.3	150
23...	16	--	<1	--	--	--	--	--	--	--	110
JUN											
15...	34	6100	290	120	42	29	11	25	1.0	2.2	76
28...	12	--	170	--	--	--	--	--	--	--	69
JUL											
05...	11	1600	33	100	26	25	9.4	24	1.0	1.9	75
25...	11	K60	50	--	--	--	--	--	--	--	120
AUG											
15...	14	--	K17	260	96	63	24	68	1.9	3.7	160
30...	13	--	--	--	--	--	--	--	--	--	140
SEP											
13...	16	K16	K19	230	90	54	23	63	1.8	3.8	140

DATE	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	SOLIDS, SUSP. TOTAL, RESIDUE AT 110 DEG. C (MG/L) (70299)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)
OCT										
04...	200	8.3	.4	11	426	448	.58	13000	18	.10
10...	--	--	--	--	458	--	.62	13100	23	.10
NOV										
07...	220	9.6	.4	9.1	485	488	.66	13500	2	.17
13...	--	--	--	--	491	--	.67	6740	31	.29
DEC										
04...	240	13	.4	12	542	517	.74	11700	29	.45
19...	--	--	--	--	535	--	.73	10500	6	.43
JAN										
05...	320	12	.2	13	653	665	.89	9730	3	.57
17...	--	--	--	--	537	--	.73	8260	27	.52
FEB										
07...	250	11	.4	14	582	538	.79	9620	0	.56
22...	--	--	--	--	584	--	.79	11900	3	.54
MAR										
07...	260	18	.4	12	561	576	.76	13800	9	.49
21...	--	--	--	--	610	--	.83	40200	1820	.48
APR										
13...	330	11	.4	9.4	648	653	.88	23600	248	.25
23...	--	--	--	--	651	--	.89	20900	37	.31
MAY										
11...	240	9.7	.4	10	438	510	.60	14200	70	.22
23...	--	--	--	--	311	--	.42	13300	131	.17
JUN										
15...	82	4.3	.3	10	211	210	.29	13800	219	.12
28...	--	--	--	--	189	--	.26	14700	115	.14
JUL										
05...	71	4.1	.3	11	200	192	.27	12200	78	.12
25...	--	--	--	--	348	--	.47	10300	35	.01
AUG										
15...	240	13	.4	--	482	508	.66	9290	24	.14
30...	--	--	--	--	402	--	.55	9200	33	.06
SEP										
13...	220	5.6	.5	8.7	430	466	.58	7000	--	.01

06296120 YELLOWSTONE RIVER NEAR MILES CITY, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C) (00689)	OIL AND GREASE (MG/L) (00550)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
OCT										
04...	.01	.49	.50	.05	--	3.4	.4	--	150	10
10...	.00	1.2	1.2	.02	3.5	--	--	--	--	--
NOV										
07...	.01	.43	.44	.01	3.2	--	--	--	150	10
13...	.01	.48	.49	.03	2.5	--	--	0	--	--
DEC										
04...	.01	.37	.38	.03	2.9	--	--	--	170	<10
19...	.01	.21	.22	.01	2.6	--	--	--	--	--
JAN										
05...	.02	.34	.36	.04	--	3.9	.3	--	220	20
17...	.06	.00	.04	.04	3.5	--	--	--	--	--
FEB										
07...	.09	.19	.28	.02	2.4	--	--	--	190	10
22...	.11	.19	.30	.03	3.8	--	--	--	--	--
MAR										
07...	.10	.19	.29	.05	3.0	--	--	--	180	0
21...	.24	.56	.80	.28	18	--	--	--	--	--
APR										
13...	.03	.59	.62	.02	--	3.7	--	--	140	10
23...	.00	.54	.54	.05	11	--	--	--	--	--
MAY										
11...	.01	.35	.36	.03	4.1	--	--	--	150	10
23...	.06	.56	.62	.02	7.5	--	--	--	--	--
JUN										
15...	.01	.47	.48	.14	4.8	--	--	--	20	190
28...	.01	.22	.23	.15	4.7	--	--	--	--	--
JUL										
05...	.03	.22	.25	.15	--	1.8	.4	--	70	20
25...	.01	.62	.63	.04	3.3	--	--	--	--	--
AUG										
15...	.07	.30	.37	.04	4.6	--	--	--	150	10
30...	.05	.60	.65	.21	5.5	--	--	--	--	--
SEP										
13...	.01	.47	.48	.03	--	3.8	.4	--	160	430

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)
JUL												
05...	1700	5	4	0	<1	1	<1	10	0	15	1	2000
SEP												
13...	0900	7	7	0	<1	0	2	10	0	8	1	470

DATE	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
JUL												
05...	15	0	60	2	.0	.0	9	0	1	1	40	<3
SEP												
13...	3	0	40	40	.1	.0	4	2	1	1	0	10

06296120 YELLOWSTONE RIVER NEAR MILES CITY, MT--Continued

SPECIFIC CONDUCTANCE (MICROMHUS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	665	712	738			---	1110	830	323	280	628	598
2	670	712	749			---	1100	804	430	282	632	607
3	678	709	790			---	1060	770	433	279	640	621
4	690	719	814			---	1050	735	459	371	644	627
5	692	722	825			---	1060	738	464	328	651	633
6	700	722	783			---	1080	733	462	364	656	635
7	706	712	836			---	1090	699	407	358	661	641
8	704	705	829			---	1090	706	331	358	674	647
9	710	704	828			---	1080	679	292	372	691	649
10	717	---	824			---	1070	701	355	379	697	654
11	722	---	823			728	1010	710	359	392	705	665
12	727	---	807			683	951	714	361	461	710	671
13	730	692	818			717	955	670	406	414	715	678
14	749	700	812			790	1010	679	378	423	717	682
15	732	675	820			787	1080	682	319	432	721	683
16	731	769	795			783	1060	672	260	448	709	688
17	730	825	792			752	1040	673	239	467	627	687
18	729	778	772			---	1010	664	251	466	619	691
19	736	784	804			908	975	562	268	480	615	686
20	732	797	772			911	984	498	286	498	621	693
21	739	818	788			911	975	497	275	519	629	699
22	734	811	788			925	963	463	290	524	634	704
23	735	839	756			989	959	417	330	536	631	711
24	732	842	759			991	938	416	317	547	628	714
25	736	832	753			970	928	338	310	539	626	716
26	732	770	728			974	935	332	308	546	622	718
27	736	707	769			1030	926	309	300	561	623	720
28	742	739	821			1030	931	282	279	562	620	722
29	742	722	810			1010	930	238	276	571	620	726
30	750	701	---			1060	938	237	274	566	612	729
31	751	---	---			1060	---	225	---	568	613	---
MEAN	722	749	793			900	1010	570	335	448	651	677

WTR YR 1979 MEAN 676 MAX 1110 MIN 225

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15.0	9.5	.5	.0	.0	.0	6.0	15.5	14.5	21.5	24.0	21.5
2	15.0	10.5	.5	.0	.0	.0	6.5	14.0	16.0	21.0	24.5	22.0
3	13.0	10.5	.5	.0	.0	.0	5.0	14.5	19.5	22.5	24.5	23.0
4	12.5	9.0	1.0	.0	.0	.0	3.5	15.0	20.0	23.0	25.0	23.0
5	12.5	8.0	.5	.0	.0	---	2.5	15.5	21.0	24.0	25.0	23.0
6	13.0	8.5	.5	.0	.0	---	5.0	12.5	20.0	24.0	25.0	23.0
7	14.0	9.5	.5	.0	.0	---	6.5	12.0	17.5	24.0	24.5	23.5
8	15.0	10.0	.5	.0	.0	---	7.5	11.0	16.0	24.0	24.0	24.0
9	15.5	6.5	1.0	.0	.0	---	14.0	10.5	15.5	24.0	23.5	23.5
10	15.5	---	1.0	.0	.0	---	11.0	12.0	17.5	24.0	23.0	19.5
11	14.5	---	.5	.0	.0	4.0	8.0	12.5	20.0	23.0	23.0	20.0
12	13.5	---	1.5	.0	.0	2.0	7.0	14.5	21.5	23.0	22.5	18.5
13	12.5	.5	.5	.0	.0	2.5	7.5	15.5	25.5	22.5	21.0	17.0
14	13.0	.5	.5	.0	.0	3.0	9.0	17.0	21.0	24.0	21.0	17.5
15	13.0	.5	1.5	.0	.0	3.5	10.5	18.5	21.0	22.0	21.5	18.5
16	13.0	.5	.5	.0	.0	3.0	15.0	20.0	20.0	22.5	22.0	19.5
17	13.5	.5	.5	.0	.0	2.0	16.5	18.0	24.0	24.0	22.0	19.0
18	12.5	.5	.5	.0	.0	---	15.5	19.5	18.0	24.0	22.5	18.5
19	12.0	.5	.5	.0	.0	2.5	11.0	18.0	17.5	25.0	22.5	19.5
20	12.0	.5	.5	.0	.0	3.0	12.0	18.5	19.0	25.5	23.5	19.0
21	11.5	.5	.5	.0	.0	3.0	12.5	19.5	21.5	27.0	23.0	19.5
22	10.5	.5	.5	.0	.0	2.5	11.0	18.5	17.5	27.0	22.5	19.5
23	11.0	.5	.5	.0	.0	5.0	10.0	19.0	19.0	24.5	22.5	19.5
24	10.5	.5	1.0	.0	.0	8.5	10.5	19.5	20.5	25.0	22.0	19.5
25	10.5	.5	1.0	.0	.0	6.0	11.5	21.0	20.0	22.5	21.0	19.5
26	9.5	.5	.5	.0	.0	4.0	10.5	22.0	21.5	22.0	21.0	19.5
27	8.5	.5	.5	.0	.0	4.0	14.0	22.0	21.0	22.5	21.5	18.0
28	9.0	1.0	.5	.0	.0	4.5	12.0	18.5	22.0	24.5	22.5	18.0
29	10.0	1.0	.5	.0	---	6.0	13.0	16.0	22.5	23.0	23.5	18.5
30	8.5	1.0	.0	.0	---	6.5	16.0	14.0	22.5	23.0	23.5	18.5
31	7.5	---	.0	.0	---	---	---	12.5	---	23.5	22.5	---
MEAN	12.0	3.5	.5	.0	.0	3.5	10.0	16.5	20.0	23.5	23.0	20.0

WTR YR 1979 MEAN 11.5 MAX 27.0 MIN .0

06296120 YELLOWSTONE RIVER NEAR MILES CITY, MT--Continued

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPERATURE (DEG C) (00010)	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT						
04...	1430	12.5	11300	39	1190	86
NOV						
07...	1030	6.5	10300	31	862	84
MAR						
07...	1400	1.0	9130	16	394	--
JUN						
15...	0900	20.0	24200	326	21300	68
JUL						
05...	1700	23.0	22500	118	7170	72
AUG						
15...	1330	20.5	7140	37	713	92
SEP						
13...	0900	16.0	6030	32	521	95

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

PERIPHYTON

DATE	TIME	LENGTH OF EXPOSURE (DAYS) (00022)	PERIPHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M (00573)	PERIPHYTON BIOMASS ASH WEIGHT G/SQ M (00572)	CHLOR-A PERIPHYTON CHROMOGRAPHIC FLUOROM (MG/M2) (70957)	CHLOR-B PERIPHYTON CHROMOGRAPHIC FLUOROM (MG/M2) (70958)	BIOMASS CHLOROPHYLL RATIO PERIPHYTON (UNITS) (70950)
OCT							
04...	1430	27	.551	.157	.320	.000	1230
NOV							
07...	1030	34	13.1	12.1	6.65	.150	150

06306100 SQUIRREL CREEK NEAR DECKER, MT

LOCATION.--Lat 45°03'05", long 106°55'36", in NW¼NW¼ sec.14, T.9 S., R.39 E., Bighorn County, Hydrologic Unit 10090101, on left bank 0.4 mi (0.6 km) upstream from Powers Cormack ditch, 0.5 mi (0.8 km) northwest of C X Ranch, 4 mi (6 km) northwest of Decker, and 7 mi (11 km) upstream from mouth.

DRAINAGE AREA.--33.6 mi² (87.0 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1975 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Altitude of gage is 3,680 ft (1,122 m), from topographic map.

REMARKS.--Water-discharge records fair. Two small diversions above station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 584 ft³/s (16.5 m³/s) May 18, 1978, gage height, 7.27 ft (2.216 m); no flow Jan. 8, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 75 ft³/s (2.12 m³/s) Apr. 19, gage height, 3.69 ft (1.125 m); minimum, 0.37 ft³/s (0.011 m³/s) Sept. 27, gage height, 1.21 ft (0.369 m).

DISCHARGE, STREAM (CUBIC FEET PER SECOND), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.7	2.3	3.0	2.9	1.7	2.1	15	25	10	3.5	3.9	.71
2	1.7	2.1	3.0	2.9	1.7	2.1	13	23	9.2	3.3	2.3	.66
3	1.7	2.0	2.9	2.7	1.5	2.1	11	21	8.8	3.2	1.8	.62
4	1.7	2.0	3.1	2.7	1.4	2.1	11	21	8.1	3.6	1.6	.62
5	1.7	1.7	3.1	2.7	1.4	2.2	11	23	8.0	4.2	1.5	.58
6	1.7	1.7	3.1	2.8	1.4	2.5	11	27	7.5	3.4	1.5	.54
7	1.9	1.7	3.1	2.8	1.5	3.1	15	24	7.8	3.2	1.4	.54
8	1.9	1.7	3.1	2.7	1.3	3.9	27	21	8.1	3.0	1.4	.54
9	1.9	1.7	3.1	2.6	1.4	4.1	30	20	7.5	2.7	1.4	.47
10	1.9	1.7	3.1	2.3	1.5	4.5	36	19	7.1	2.7	1.3	.50
11	1.9	1.7	3.1	2.3	1.5	5.5	30	18	6.5	2.4	1.2	.58
12	1.9	1.6	3.1	2.3	1.5	7.4	22	19	6.2	2.3	1.2	.84
13	1.9	1.8	3.0	2.3	1.5	9.9	18	20	5.8	2.1	1.5	.99
14	1.9	1.7	3.1	2.3	1.6	10	18	20	5.4	2.1	1.9	.89
15	1.9	1.6	3.2	2.3	1.6	12	21	18	5.1	1.9	1.7	.80
16	2.0	2.2	3.1	2.4	1.7	14	28	16	5.1	1.9	1.5	.75
17	2.1	2.7	3.2	2.4	1.7	17	37	18	5.3	2.2	1.4	.66
18	2.1	2.8	3.1	2.4	1.7	17	50	18	5.3	2.0	1.2	.58
19	2.1	2.8	3.2	2.3	1.7	15	58	16	5.1	1.7	1.2	.54
20	2.1	2.6	3.1	2.4	1.7	10	39	15	5.0	1.5	1.2	.54
21	2.2	2.6	3.1	2.4	1.7	9.5	31	14	4.7	1.5	1.2	.58
22	2.3	2.8	3.1	2.3	1.7	9.5	30	13	4.4	1.3	1.2	.58
23	2.3	2.8	3.3	2.3	1.7	9.8	35	12	4.3	1.3	1.0	.58
24	2.3	2.8	3.3	2.5	1.7	10	29	12	4.1	1.5	.99	.58
25	2.3	2.8	3.2	2.5	1.8	14	25	12	3.9	1.5	.99	.54
26	2.3	2.6	3.2	2.4	1.9	13	28	11	4.0	1.7	1.2	.62
27	2.3	3.0	3.2	2.3	1.9	12	30	11	8.4	1.8	1.3	.58
28	2.3	3.0	3.2	2.2	2.0	10	28	10	5.4	1.7	1.2	.62
29	2.3	3.0	3.1	2.1	---	10	29	11	4.3	12	1.1	.62
30	2.3	3.0	2.9	2.0	---	12	24	14	3.9	4.9	.94	.66
31	2.3	---	2.9	1.9	---	15	---	12	---	3.9	.80	---
TOTAL	62.9	68.9	96.3	75.4	45.4	271.3	790	536	184.3	86.0	44.02	18.91
MEAN	2.03	2.30	3.11	2.43	1.62	8.75	26.3	17.3	6.14	2.77	1.42	.63
MAX	2.3	3.0	3.3	2.9	2.0	17	58	27	10	12	3.9	.99
MIN	1.7	1.6	2.9	1.9	1.3	2.1	11	10	3.9	1.3	.80	.47
AC-FT	125	137	191	150	90	538	1570	1060	366	171	87	38

CAL YR 1978 TOTAL 3306.89 MEAN 9.06 MAX 323 MIN .60 AC-FT 6560
WTR YR 1979 TOTAL 2279.43 MEAN 6.25 MAX 58 MIN .47 AC-FT 4520

06306100 SQUIRREL CREEK NEAR DECKER, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Waters years 1976 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	OXYGEN DEMAND, BIOCHEMICAL, 5 DAY (MG/L) (00310)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)
OCT 31...	1115	2.3	0	1310	8.3	.5	2.0	11.2	92	--	690	240
DEC 19...	1230	3.2	3	1320	8.0	.0	.0	11.7	92	--	660	230
FEB 20...	1240	1.7	1	1400	8.4	-3.0	.0	11.8	92	--	660	220
MAR 27...	1410	13	1	1040	8.3	12.0	4.0	10.6	94	--	550	230
APR 24...	1225	28	3	896	8.7	8.0	7.5	11.0	105	.2	420	150
MAY 22...	1210	13	0	1040	8.5	16.0	15.0	9.2	103	--	550	230
JUN 20...	1300	5.0	1	1120	8.4	20.0	17.0	8.6	101	--	640	270
JUL 24...	1235	1.5	1	1260	8.2	25.0	22.0	7.5	97	--	640	250
SEP 11...	1410	.53	1	1410	8.2	21.5	15.0	8.2	92	--	750	290

DATE	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY (MG/L AS CACO3) (00410)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	BROMIDE DISSOLVED (MG/L AS BR) (71870)	IODIDE, DISSOLVED (MG/L AS I) (71865)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)
OCT 31...	94	110	50	.8	7.7	450	350	4.2	.4	.1	.00	13
DEC 19...	100	100	45	.8	7.0	430	350	3.6	.4	--	--	14
FEB 20...	100	100	50	.8	6.2	440	340	3.8	.3	.0	.01	13
MAR 27...	100	73	29	.5	5.2	320	290	3.7	.3	--	--	9.7
APR 24...	69	60	23	.5	4.4	270	220	2.3	.2	.0	.00	9.8
MAY 22...	89	80	29	.5	5.3	320	280	3.0	.3	--	--	7.2
JUN 20...	92	100	39	.7	6.5	370	320	3.4	.2	--	--	9.0
JUL 24...	73	110	51	.9	8.4	390	370	4.3	.4	--	--	12
SEP 11...	87	130	64	1.0	9.4	460	390	4.7	.5	.1	.01	64

06306100 SQUIRREL CREEK NEAR DECKER, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, KJEL-DAHL, TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C) (00689)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
OCT												
31...	900	1.22	5.59	.00	.00	.30	.30	.01	8.8	.3	130	20
DEC												
19...	879	1.20	7.59	.15	.02	.30	.32	.02	--	--	100	20
FEB												
20...	878	1.19	4.03	.21	.05	.12	.17	.01	4.1	--	110	30
MAR												
27...	703	.96	24.7	.49	.05	.41	.46	.02	--	--	80	10
APR												
24...	551	.75	41.7	.24	.01	.64	.65	.10	9.2	--	70	10
MAY												
22...	686	.93	24.1	.02	.04	.21	.25	.04	--	--	90	10
JUN												
20...	793	1.08	10.7	.14	.04	.53	.57	.39	--	--	60	10
JUL												
24...	864	1.18	3.50	.08	.05	.58	.63	.05	--	--	140	10
SEP												
11...	1030	1.40	1.47	.50	.03	.00	.00	.06	--	--	150	40

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)
APR												
24...	1225	2	3	0	<1	--	<1	10	0	13	2	3300
SEP												
11...	1410	2	2	0	<1	1	1	10	10	2	2	560

DATE	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
APR												
24...	--	0	130	30	.0	.0	9	0	1	1	50	<3
SEP												
[illegible]...	[illegible]	0	140	120	.2	.0	7	0	1	0	10	20

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPER-ATURE (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT						
31...	1115	2.0	2.3	12	.07	--
DEC						
19...	1230	.0	3.2	52	.45	--
FEB						
20...	1240	.0	1.7	46	.21	--
MAR						
27...	1410	4.0	13	142	5.0	95
APR						
24...	1225	7.5	28	176	13	97
MAY						
22...	1210	15.0	13	87	3.1	--
JUN						
20...	1300	17.0	5.0	116	1.6	92
JUL						
24...	1235	22.0	1.5	126	.51	--
SEP						
11...	1410	15.0	.53	45	.06	--

06306250 PRAIRIE DOG CREEK NEAR ACME, WY

LOCATION.--Lat 44°59'02", long 106°50'21", in NE¼SW¼SW¼ sec.23, T.58 N., R.83 W., Sheridan County, Hydrologic Unit 10090101, on right bank, 600 ft (183 m) upstream from county bridge, 0.9 mi (1.5 km) upstream from mouth, 2.8 mi (4.5 km) downstream from Coutant Creek, and 7.6 mi (12.2 km) northeast of Acme.

DRAINAGE AREA.--358 mi² (927 km²).

PERIOD OF RECORD.--October 1970 to September 1979 (discontinued). Records for May 1965 to September 1970 in files of Office of Wyoming State Engineer.

GAGE.--Water-stage recorder. Altitude of gage is 3,450 ft (1,052 m), from topographic map.

REMARKS.--Records good except those for periods of no gage-height record and those for the winter period, which are poor. No gage-height record Nov. 5 to Dec. 19. Several observations of water temperature were made during the water year. Diversions for irrigation of about 13,600 acres (55.0 km²) above station, of which about 60 acres (243,000 m²) lies below station. Flow supplemented by three transbasin diversions from North Piney Creek and South Piney Creek via Prairie Dog Creek ditch, Piney and Cruse ditch, and Mead-Coffeen ditch. Several observations of water temperature were made and are available in files of Helena district office.

AVERAGE DISCHARGE.--9 years, 46.2 ft³/s (1.308 m³/s), 33,470 acre-ft/yr (41.3 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,940 ft³/s (112 m³/s) May 19, 1978, gage height, 12.60 ft (3.840 m), from floodmark, from rating curve extended above 670 ft³/s (19.0 m³/s) on basis of slope-area determination of peak flow; minimum daily, 6.3 ft³/s (0.18 m³/s) June 4, 5, 1976.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 265 ft³/s (7.50 m³/s) Mar. 17, gage height, 3.85 ft (1.173 m); minimum daily, 14 ft³/s (0.40 m³/s) July 24, Aug. 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	44	39	32	16	19	21	80	50	79	48	22	45
2	42	38	28	17	20	21	74	48	64	45	21	44
3	41	37	24	18	21	21	74	51	49	46	19	45
4	40	37	25	17	22	23	63	53	42	41	19	45
5	40	37	25	16	23	25	61	50	33	38	19	44
6	40	35	24	17	23	31	58	47	28	57	18	44
7	40	34	23	18	22	43	56	40	29	66	17	46
8	41	33	23	18	20	60	63	39	37	47	15	46
9	42	32	23	18	24	76	71	40	39	40	14	46
10	42	30	24	18	28	86	75	42	36	32	17	45
11	42	30	27	18	28	119	83	46	34	29	20	44
12	41	30	28	18	27	150	84	50	32	27	21	50
13	40	31	27	18	29	194	78	49	32	23	26	54
14	41	32	28	17	26	194	73	45	30	20	38	54
15	41	32	25	18	24	194	68	43	32	18	49	51
16	43	33	24	19	23	205	65	40	31	17	46	48
17	44	34	24	19	26	249	70	47	29	16	51	45
18	37	34	25	20	27	222	76	49	30	16	52	44
19	38	30	26	21	26	137	92	51	29	17	52	41
20	37	34	27	22	25	133	96	47	32	16	45	45
21	37	40	27	24	24	115	101	44	31	16	45	45
22	37	45	27	23	23	107	87	44	29	16	47	47
23	38	49	26	22	22	104	73	44	30	15	48	41
24	41	47	26	21	20	101	67	44	30	14	48	38
25	39	45	26	20	20	97	62	45	29	15	50	38
26	40	49	26	20	22	99	59	44	30	16	51	40
27	38	52	25	19	22	78	58	41	34	19	56	41
28	33	56	22	19	22	73	56	43	40	18	56	47
29	36	48	20	19	---	71	54	50	48	18	56	46
30	34	39	16	18	---	70	51	65	50	18	46	37
31	39	---	15	18	---	74	---	76	---	21	47	---
TOTAL	1233	1142	768	586	658	3193	2130	1467	1098	847	1135	1346
MEAN	39.8	38.1	24.8	18.9	23.5	103	71.0	47.3	36.6	27.3	36.6	44.9
MAX	44	56	32	24	29	249	101	76	79	66	56	54
MIN	33	30	15	16	19	21	51	39	28	14	14	37
AC-FT	2450	2270	1520	1160	1310	6330	4220	2910	2180	1680	2250	2670

CAL YR 1978 TOTAL 26791 MEAN 73.4 MAX 3090 MIN 10 AC-FT 53140
WTR YR 1979 TOTAL 15603 MEAN 42.7 MAX 249 MIN 14 AC-FT 30950

06306300 TONGUE RIVER AT STATE LINE, NEAR DECKER, MT

LOCATION.--Lat 45°00'32", long 106°50'08", in NW¼NE¼ sec.33, T.9 S., R.40 E., Big Horn County, Hydrologic Unit 10090101, on left bank 1 mi (2 km) north of Wyoming-Montana State line, 1.4 mi (2.4 km) upstream from Badger Creek, and 1.4 mi (2.3 km) southeast of Decker.

DRAINAGE AREA.--1,477 mi² (3,825 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1960 to current year. Records published as "near Decker" May 1928 to September 1938, not equivalent owing to intervening drainage area.

GAGE.--Water-stage recorder. Datum of gage is 3,429.14 ft (1,045.202 m) National Geodetic Vertical Datum of 1929 (levels by Army Corps of Engineers).

REMARKS.--Water-discharge records good except those for winter period, which are poor. Flow regulated by many small reservoirs in Wyoming, combined capacity, about 15,000 acre-ft (18.5 hm³). Diversions for irrigation of about 64,300 acres (260 km²) above station.

AVERAGE DISCHARGE.--19 years, 519 ft³/s (14.70 m³/s), 376,000 acre-ft/yr (464 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,500 ft³/s (496 m³/s) May 19, 1978, gage height, 14.25 ft (4.343 m); minimum, 3.0 ft³/s (0.11 m³/s) Aug. 23, 1961.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,050 ft³/s (58.1 m³/s) May 29, gage height 5.84 ft (1.780 m), only peak above base of 2,000 ft³/s (56.6 m³/s); minimum discharge, 106 ft³/s (3.00 m³/s) Aug. 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	399	247	190	140	170	370	399	399	1420	651	163	253
2	399	267	195	150	190	370	375	446	1270	624	148	260
3	395	260	190	160	200	360	335	455	1190	583	133	253
4	371	260	180	170	200	370	313	408	1180	645	131	243
5	351	263	200	160	200	390	324	408	1330	750	126	227
6	339	250	205	170	200	400	316	492	1460	619	119	221
7	339	230	210	170	210	430	324	599	1590	568	117	215
8	339	220	210	180	220	420	429	534	1310	520	110	200
9	335	210	215	180	230	415	420	539	1070	469	110	191
10	331	200	225	180	240	400	442	520	970	416	112	183
11	328	200	230	180	230	380	492	506	957	367	115	183
12	305	210	240	180	240	400	446	492	1020	320	115	197
13	305	205	230	180	240	470	387	473	1200	287	131	203
14	305	210	220	170	230	460	359	460	1320	257	221	203
15	324	230	225	180	210	450	359	492	1350	247	291	203
16	359	220	230	190	190	450	375	594	1230	240	253	203
17	359	210	220	200	200	460	399	797	1140	234	227	194
18	355	200	215	210	220	460	464	888	1060	218	215	180
19	367	190	235	220	230	430	573	857	1030	203	221	177
20	363	180	240	220	220	460	672	869	913	177	227	174
21	316	170	235	230	220	500	539	913	869	172	227	180
22	302	175	235	220	220	520	473	1000	803	158	224	180
23	313	180	235	210	210	520	442	1090	791	145	215	191
24	298	180	235	200	210	500	460	1120	767	172	215	200
25	302	175	225	190	230	492	460	1200	716	177	221	200
26	291	170	220	180	280	433	442	1270	700	191	247	185
27	284	175	215	180	300	359	438	1380	722	183	270	172
28	273	180	200	175	350	351	408	1590	750	177	263	177
29	280	190	180	170	---	335	399	1770	716	172	257	180
30	284	190	170	165	---	367	395	1900	694	161	250	169
31	267	---	150	165	---	416	---	1640	---	153	247	---
TOTAL	10178	6247	6605	5675	6290	13138	12659	26101	31538	10256	5921	5997
MEAN	328	208	213	183	225	424	422	842	1051	331	191	200
MAX	399	267	240	230	350	520	672	1900	1590	750	291	260
MIN	267	170	150	140	170	335	313	399	694	145	110	169
AC-FT	20190	12390	13100	11260	12480	26060	25110	51770	62560	20340	11740	11900

CAL YR 1978 TOTAL 318390 MEAN 872 MAX 15400 MIN 130 AC-FT 631500
WTR YR 1979 TOTAL 140605 MEAN 385 MAX 1900 MIN 110 AC-FT 278900

06306300 TONGUE RIVER AT STATE LINE, NEAR DECKER, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1966 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW (CFS) (00060)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	TUR-BID-ITY (JTU) (00070)	OXYGEN, DIS-SOLVED (MG/L) (00300)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	HARD-NESS (MG/L AS CACO3) (00900)
OCT										
14...	0950	--	313	700	8.2	6.0	1	9.7	K48	330
19...	1330	--	371	690	8.1	10.0	--	--	--	330
NOV										
11...	1000	200	--	770	8.3	.0	3	11.9	110	360
DEC										
09...	0810	215	--	950	7.9	.0	4	--	130	430
JAN										
09...	0830	180	--	1700	7.7	.0	5	12.9	K30	900
FEB										
03...	0830	200	--	940	7.6	.0	2	10.8	K540	420
MAR										
17...	0810	460	--	880	8.0	.0	40	12.4	K620	350
APR										
17...	0820	--	408	1090	8.3	10.0	15	9.7	K130	440
JUN										
12...	1100	--	925	370	8.0	16.0	15	8.8	K960	150
JUL										
21...	1130	--	174	740	8.4	24.0	15	8.1	K80	330
AUG										
22...	1600	--	218	760	8.5	22.0	6	11.1	170	330
SEP										
19...	1620	--	180	820	8.7	18.0	7	13.2	120	350

DATE	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)
OCT										
14...	100	63	42	33	.8	3.1	280	0	230	2.8
19...	160	65	41	29	.7	3.1	190	8	170	2.6
NOV										
11...	120	74	42	41	.9	3.2	290	0	240	2.3
DEC										
09...	150	86	51	47	1.0	3.7	340	0	280	6.8
JAN										
09...	280	180	110	98	1.4	11	760	0	620	24
FEB										
03...	160	89	48	44	.9	3.2	320	0	260	13
MAR										
17...	150	65	45	50	1.2	6.2	240	0	200	3.8
APR										
17...	200	83	56	61	1.3	5.3	280	6	240	2.3
JUN										
12...	35	32	17	15	.5	.0	140	0	120	2.2
JUL										
21...	120	69	38	35	.8	3.8	260	0	210	1.7
AUG										
22...	100	64	41	42	1.0	4.3	270	3	230	1.4
SEP										
19...	110	72	42	39	.9	4.8	280	6	240	.9

06306300 TONGUE RIVER AT STATE LINE, NEAR DECKER, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	SOLIDS, SUSP. TOTAL, RESIDUE AT 110 DEG. C (MG/L) (70299)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N) (00618)
OCT										
14...	170	3.7	.4	3.9	--	459	.62	388	6	.43
19...	190	3.5	.3	6.3	445	440	.61	446	--	--
NOV										
11...	210	3.7	.5	--	--	--	.70	253	17	.11
DEC										
09...	250	5.2	.5	9.6	--	615	.84	357	11	.45
JAN										
09...	490	17	.7	26	--	1320	1.80	642	12	1.5
FEB										
03...	240	18	.5	11	--	617	.84	333	11	.61
MAR										
17...	250	6.0	.4	7.2	--	553	.75	687	70	.61
APR										
17...	330	5.9	.5	.9	--	689	.94	759	40	.05
JUN										
12...	71	2.7	.2	6.2	--	214	.29	534	38	.14
JUL										
21...	180	6.9	.3	2.2	--	465	.63	218	31	.02
AUG										
22...	200	3.4	.4	6.3	--	505	.69	297	9	.02
SEP										
19...	190	5.2	.3	2.6	--	512	.70	249	--	--

DATE	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C) (00689)	BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022)
OCT										
14...	.03	--	.04	.61	.65	.08	--	4.1	.4	150
19...	.03	--	.01	.34	.35	.05	.03	4.9	2.6	--
NOV										
11...	.04	--	.05	.44	.49	.03	--	--	--	140
DEC										
09...	.46	--	.17	.56	.73	.10	--	--	--	160
JAN										
09...	1.4	--	.67	4.5	5.2	.09	--	--	--	220
FEB										
03...	.55	--	.33	.28	.61	.11	--	--	--	50
MAR										
17...	.47	--	.30	.80	1.1	.15	--	--	--	210
APR										
17...	.06	--	.18	.45	.63	.06	--	--	--	130
JUN										
12...	.09	--	.06	.81	.87	.06	--	5.6	1.0	220
JUL										
21...	.05	--	.07	.90	.97	.04	--	--	--	90
AUG										
22...	.03	--	.05	.35	.40	.08	--	--	--	130
SEP										
19...	.56	.02	.00	.68	.68	.05	--	--	--	110

06306300 TONGUE RIVER AT STATE LINE, NEAR DECKER, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	ALUMINUM, TOTAL RECOVERABLE (UG/L AS AL) (01105)	ALUMINUM, DISSOLVED (UG/L AS AL) (01106)	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DISSOLVED (UG/L AS AS) (01000)	BERYLLIUM, TOTAL RECOVERABLE (UG/L AS BE) (01012)	BERYLLIUM, DISSOLVED (UG/L AS BE) (01010)	BORON, DISSOLVED (UG/L AS B) (01020)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD) (01027)	CADMIUM DISSOLVED (UG/L AS CD) (01025)
OCT										
14...	0950	80	10	1	1	0	<1	--	5	3
19...	1330	--	--	--	--	--	--	90	--	--
JUN										
12...	1100	790	20	1	1	0	0	--	5	1

DATE	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)	COPPER, DISSOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)	IRON, DISSOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOVERABLE (UG/L AS PB) (01051)	LEAD, DISSOLVED (UG/L AS PB) (01049)	LITHIUM TOTAL RECOVERABLE (UG/L AS LI) (01132)	LITHIUM DISSOLVED (UG/L AS LI) (01130)
OCT										
14...	0	0	4	6	160	20	16	14	30	20
19...	--	--	--	--	--	40	--	--	--	--
JUN										
12...	10	0	5	2	980	20	7	0	4	4

DATE	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MOLYBDENUM, TOTAL RECOVERABLE (UG/L AS MO) (01062)	MOLYBDENUM, DISSOLVED (UG/L AS MO) (01060)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI) (01067)	NICKEL, DISSOLVED (UG/L AS NI) (01065)	SELENIUM, TOTAL (UG/L AS SE) (01147)	VANADIUM, DISSOLVED (UG/L AS V) (01085)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)	ZINC, DISSOLVED (UG/L AS ZN) (01090)
OCT										
14...	30	10	3	0	1	3	1	.2	20	8
19...	--	--	--	--	--	--	--	--	--	--
JUN										
12...	50	10	0	0	6	1	1	.7	20	10

06306900 SPRING CREEK NEAR DECKER, MT

LOCATION.--Lat 45°05'09", long 106°50'12", in SW¼NW¼SE¼ sec.33, T.8 S., R.40 E., Bighorn County, Hydrologic Unit 10090101, on county road bridge, 0.2 mi (0.3 km) downstream from South Fork, 1.2 mi (1.9 km) upstream from Tongue River Reservoir, and 5.3 mi (8.5 km) northeast of Decker.

DRAINAGE AREA.--34.7 mi² (89.9 km²).

PERIOD OF RECORD.--Water years 1978 to current year.

REMARKS.--Scheduled samplings were not possible during periods of no flow.

06307500 TONGUE RIVER AT TONGUE RIVER DAM, NEAR DECKER, MT

LOCATION.--Lat 45°08'29", long 106°46'15", in SW¼SE¼SE¼ sec.12, T.8 S., R.40 E., Big Horn County, Hydrologic Unit 10090101, on left bank 0.5 mi (0.8 km) downstream from Tongue River Dam, 4 mi (6 km) upstream from Post Creek, 8 mi (13 km) northeast of Decker, 16 mi (26 km) southeast of Kirby, and at mile 162.3 (261.1 km).

DRAINAGE AREA.--1,770 mi² (4,580 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1939 to current year.

REVISED RECORDS.--WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 3,344.40 ft (1,019.373 m) National Geodetic Vertical Datum of 1929 (levels by U.S. Water and Power Resources Service).

REMARKS.--Water-discharge records good except those for July 24 to Sept. 30, which are fair. Flow regulated by Tongue River Reservoir (see p. 611,612) and many small reservoirs, combined capacity, about 15,000 acre-ft (18.5 hm³). Diversions for irrigation of about 64,800 acres (262 hm²) above station.

AVERAGE DISCHARGE.--40 years, 468 ft³/s (13.25 m³/s), 339,100 acre-ft/yr (418 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,800 ft³/s (306 m³/s) May 20, 1978, gage height, 10.00 ft (3.048 m), from floodmark in gage well; no flow part of each day Nov. 12, 13, 1969, when gates at dam were closed.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,610 ft³/s (45.6 m³/s) May 30, gage height, 3.76 ft (1.146 m); minimum daily, 112 ft³/s (3.17 m³/s) Nov. 23, 24.

DISCHARGE, STREAM (CUBIC FEET PER SECOND), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	369	121	505	255	250	241	259	259	1590	587	501	496
2	373	121	505	255	250	241	259	388	1590	596	501	488
3	373	121	501	255	250	241	259	418	1490	550	505	488
4	376	121	501	255	250	241	259	450	1450	514	509	484
5	376	121	496	255	247	238	259	450	1280	514	514	479
6	380	119	496	255	244	238	259	454	1220	514	518	475
7	380	119	492	255	244	238	259	454	1220	514	523	471
8	380	119	492	253	244	238	259	454	1220	514	527	471
9	302	119	488	253	244	241	259	454	1220	467	536	463
10	166	117	488	253	244	241	262	454	1150	430	541	459
11	147	117	480	253	244	241	262	454	1000	430	545	454
12	124	117	376	253	247	241	262	459	840	430	541	450
13	124	117	320	253	250	244	262	459	536	430	514	450
14	126	115	320	253	250	244	262	459	523	430	518	446
15	126	115	320	253	253	247	262	459	527	430	527	395
16	126	115	320	253	253	247	262	459	527	430	510	355
17	128	113	320	253	250	250	262	463	527	426	488	351
18	126	113	320	253	250	250	265	463	527	426	492	351
19	128	113	320	253	248	253	265	467	523	426	496	347
20	128	113	316	250	248	253	265	467	514	430	505	340
21	128	113	316	250	247	253	265	471	509	450	505	337
22	126	113	316	250	247	253	265	484	505	496	505	300
23	126	112	316	250	247	253	265	516	501	496	509	271
24	126	112	287	250	247	256	268	601	501	496	505	230
25	126	174	262	250	247	256	268	797	496	501	509	186
26	124	238	262	250	247	256	268	853	496	505	505	184
27	124	235	262	250	244	256	250	952	541	505	505	184
28	124	235	259	250	241	256	333	994	559	509	501	184
29	124	330	261	250	---	256	333	1100	554	514	496	181
30	121	509	255	250	---	256	333	1360	559	514	496	181
31	121	---	255	250	---	256	---	1600	---	505	496	---
TOTAL	6128	4517	11435	7821	6927	7675	8070	18574	24550	14979	15843	10951
MEAN	198	151	369	252	247	248	269	599	818	483	511	365
MAX	380	509	505	255	253	256	333	1600	1590	596	545	496
MIN	121	112	255	250	241	238	250	259	496	426	488	181
AC-FT	12150	8960	22680	15510	13740	15220	16010	36840	48690	29710	31420	21720

CAL YR 1978 TOTAL 318569 MEAN 873 MAX 9580 MIN 112 AC-FT 631900
WTR YR 1979 TOTAL 137470 MEAN 377 MAX 1600 MIN 112 AC-FT 272700

06307500 TONGUE RIVER AT TONGUE RIVER DAM, NEAR DECKER, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1976 to current year.

REVISIONS.--The concentrations of dissolved cadmium and dissolved lead for July 19, 1978 (1110 hours) were found in error and have been deleted.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	HARDNESS (MG/L AS CACO3) (00900)
OCT										
19...	1030	124	--	700	8.6	6.5	9.5	--	--	330
NOV										
01...	1340	114	0	757	8.5	11.0	10.0	12.4	123	330
DEC										
20...	1300	326	1	840	8.3	-6.0	.0	12.5	97	380
FEB										
21...	0935	245	1	996	8.2	-8.0	.5	11.6	92	430
MAR										
28...	0955	269	3	969	8.1	.0	1.0	11.6	93	450
APR										
25...	0915	276	1	958	8.6	11.0	7.0	10.7	99	410
MAY										
23...	0950	549	0	907	8.6	19.0	13.0	9.3	98	420
JUN										
20...	0945	496	1	394	8.1	17.5	16.0	8.5	99	170
JUL										
24...	0925	500	0	431	8.2	22.0	21.0	6.6	83	170
SEP										
11...	1105	455	0	640	8.4	18.5	20.0	7.2	88	280

DATE	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY (MG/L AS CACO3) (00410)	SULFATE DISSOLVED (MG/L AS SO4) (00945)
OCT								
19...	110	63	42	36	.9	3.6	220	180
NOV								
01...	130	62	42	36	.9	4.1	200	190
DEC								
20...	140	73	48	40	.9	4.0	240	230
FEB								
21...	160	87	51	43	.9	3.8	270	250
MAR								
28...	210	87	57	53	1.1	4.9	240	310
APR								
25...	200	72	56	56	1.2	5.1	210	320
MAY								
23...	200	76	57	54	1.1	4.9	220	320
JUN								
20...	60	35	20	19	.6	2.0	110	97
JUL								
24...	50	35	20	18	.6	2.3	120	83
SEP								
11...	120	51	36	35	.9	3.4	160	180

06307500 TONGUE RIVER AT TONGUE RIVER DAM, NEAR DECKER, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	BROMIDE DISSOLVED (MG/L AS BR) (71870)	IODIDE, DISSOLVED (MG/L AS I) (71865)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)
OCT 19...	4.0	.3	--	--	5.2	467	.64	157	.02
NOV 01...	3.7	1.1	.1	.01	5.2	465	.63	143	.01
DEC 20...	4.4	.2	--	--	7.3	551	.75	485	.19
FEB 21...	4.9	.3	.0	.02	11	613	.83	406	.50
MAR 28...	5.4	.3	--	--	8.7	671	.91	487	.49
APR 25...	4.9	.3	.0	.01	7.3	650	.88	468	.18
MAY 23...	4.9	.3	--	--	4.1	654	.89	969	.15
JUN 20...	2.0	.1	.0	.00	6.1	247	.34	331	.07
JUL 24...	1.9	.2	--	--	6.8	239	.33	323	.09
SEP 11...	2.9	.3	.0	.00	7.8	413	.56	507	.02

DATE	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITROGEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC DISSOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUSPENDED TOTAL (MG/L AS C) (00689)	BORON, DISSOLVED (UG/L AS B) (01020)	IRON, DISSOLVED (UG/L AS FE) (01046)
OCT 19...	.04	.55	.59	.02	--	--	110	<10
NOV 01...	.01	.30	.31	.01	5.5	--	140	10
DEC 20...	.08	.13	.21	.04	--	--	110	60
FEB 21...	.28	.14	.42	.05	2.7	--	110	20
MAR 28...	.30	.29	.59	.05	--	--	100	20
APR 25...	.10	.49	.59	.03	8.8	.5	90	0
MAY 23...	.07	.31	.38	.02	--	--	140	10
JUN 20...	.10	.33	.43	.04	8.3	.6	40	20
JUL 24...	.09	.37	.46	.04	--	--	4	10
SEP 11...	.03	.02	.05	.03	--	--	90	<10

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DISSOLVED (UG/L AS AS) (01000)	BERYLLIUM, TOTAL RECOVERABLE (UG/L AS BE) (01012)	BERYLLIUM, DISSOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD) (01027)	CADMIUM DISSOLVED (UG/L AS CD) (01025)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)	COPPER, DISSOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)
JUN 20...	0945	3	2	0	0	1	1	20	20	2	1	320
SEP 11...	1105	4	4	10	<1	4	<1	0	10	2	2	150

06307500 TONGUE RIVER AT TONGUE RIVER DAM, NEAR DECKER, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
JUN												
20...	7	0	40	40	.1	.0	7	3	0	0	50	10
SEP												
11...	6	0	90	50	.1	.0	4	0	1	1	0	5

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPER-ATURE (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
NOV						
01...	1340	10.0	114	18	5.5	85
DEC						
20...	1300	.0	326	59	52	78
FEB						
21...	0935	.5	245	8	5.3	--
MAR						
28...	0955	1.0	269	10	7.3	89
APR						
25...	0915	7.0	278	12	9.0	87
MAY						
23...	0950	13.0	549	33	49	85
JUN						
20...	0945	16.0	496	16	21	95
JUL						
24...	0925	21.0	500	12	16	93
SEP						
11...	1105	20.0	455	16	20	93

06307525 PRAIRIE DOG CREEK ABOVE JACK CREEK, NEAR BIRNEY, MT

LOCATION.--Lat 45°20'08", long 106°46'25", in SE¼NW¼NE¼ sec.12, T.6 S., R.40E., Big Horn County, Hydrologic Unit 10090101, on left bank, about 4.1 mi (6.6 km) upstream from Jack Creek confluence, about 9 mi (14 km) above mouth of Tongue River, 13 air miles (21 km) west of Birney, and 23 road miles (37 km) from Birney.

DRAINAGE AREA.--6.57 mi² (17.0 km²)

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1979 to September 1979.

GAGE.--Water-stage recorder. Altitude of gage is 3,850 ft (1,173 m), from topographic map.

REMARKS.--Water-discharge records poor. No known regulation or diversions above station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge observed, 6.81 ft³/s (0.19 m³/s) Apr. 19, 1979, gage height, 2.32 ft (0.707 m); minimum daily, 0.19 ft³/s (0.005 m³/s) Sept. 3-5. 1979.

EXTREMES FOR CURRENT YEAR.--Maximum discharge observed, 6.81 ft³/s (0.19 m³/s) Apr. 19, gage height, 2.32 ft (0.707 m); minimum daily, 0.19 ft³/s (0.005 m³/s) Sept. 3-5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1						.00	.95	3.6	1.7	.90	.53	.30
2						.00	.95	3.5	1.6	.90	.48	.22
3						.01	.84	3.4	1.6	.84	.48	.19
4						.02	.84	3.2	1.6	.84	.48	.19
5						.10	.90	3.0	1.5	.84	.39	.19
6						.20	.90	3.0	1.4	.84	.39	.22
7						.80	1.4	3.0	1.4	.68	.34	.22
8						.70	1.6	3.0	1.4	.73	.39	.22
9						.75	1.6	3.3	1.3	.68	.34	.26
10						.80	1.9	3.2	1.3	.63	.39	.30
11						1.1	2.5	3.1	1.1	.58	.34	.30
12						1.0	2.7	3.1	1.1	.58	.34	.34
13						1.0	2.9	3.1	1.0	.58	.39	.34
14						.95	3.0	2.9	1.0	.68	.39	.30
15						.90	3.2	2.7	.90	.73	.39	.30
16						1.0	3.7	2.7	.95	.68	.30	.30
17						.90	5.1	2.6	.95	.68	.30	.26
18						.95	5.9	2.6	.84	.68	.34	.22
19						.84	6.6	2.5	.95	.68	.34	.26
20						.84	5.0	2.3	1.0	.73	.34	.26
21						.79	4.8	2.1	1.1	.68	.30	.26
22						.79	4.7	2.0	1.2	.73	.34	.26
23						.79	4.7	2.1	1.1	.79	.34	.26
24						1.0	4.5	2.1	.95	.79	.30	.26
25						1.1	4.4	2.1	.95	.68	.30	.30
26						1.0	4.4	1.9	.95	.68	.34	.26
27						.95	3.9	1.9	.95	.63	.30	.30
28						.90	3.8	1.7	.95	.58	.30	.30
29						.84	3.9	1.9	.84	.63	.26	.30
30						.90	3.8	2.2	.84	.58	.26	.39
31						.95	---	1.9	---	.53	.26	---
TOTAL						22.87	95.38	81.7	34.42	21.78	10.98	8.08
MEAN						.74	3.18	2.64	1.15	.70	.35	.27
MAX						1.1	6.6	3.6	1.7	.90	.53	.39
MIN						.00	.84	1.7	.84	.53	.26	.19
AC-FT						45	189	162	68	43	22	16

06307525 PRAIRIE DOG CREEK ABOVE JACK CREEK, NEAR BIRNEY, MT

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1978 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L) (00310)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)
MAR 14...	1400	.68	0	1330	--	8.0	1.0	11.6	94	1.8	740	310
APR 19...	1425	6.8	--	1080	8.5	9.0	6.0	9.4	88	--	300	190
JUN 04...	1500	1.6	0	1360	8.3	21.0	17.0	3.8	45	--	230	0
JUL 12...	1030	.73	0	1500	8.4	19.5	15.0	7.7	88	1.0	800	350
SEP 26...	1030	.30	1	1770	8.1	24.0	14.0	8.9	100	--	940	470

DATE	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	BROMIDE DIS-SOLVED (MG/L AS BR) (71870)	IODIDE, DIS-SOLVED (MG/L AS I) (71865)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)
MAR 14...	100	120	50	.8	5.2	430	370	4.5	.3	--	--	11
APR 19...	91	17	35	.9	5.0	110	280	4.0	.3	--	--	8.6
JUN 04...	94	--	51	--	5.3	400	420	5.1	.4	.0	.00	6.9
JUL 12...	91	140	65	1.0	6.7	450	490	5.7	.4	.0	.00	12
SEP 26...	95	170	84	1.2	7.3	470	670	6.5	.4	--	--	13

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C) (00689)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
MAR 14...	920	1.25	1.69	.25	.02	.42	.44	.01	6.2	--	70	10
APR 19...	507	.69	9.31	.44	.01	.49	.50	.08	--	--	70	40
JUN 04...	--	1.12	--	.18	.01	.38	.39	.02	6.1	1.1	100	20
JUL 12...	1080	1.47	2.13	.31	.00	.53	.53	.04	6.7	.5	180	10
SEP 26...	1330	1.81	1.06	.14	.02	.38	.40	.00	--	--	120	30

06307525 PRAIRIE DOG CREEK ABOVE JACK CREEK, NEAR BIRNEY, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)
JUL												
12...	1030	1	1	0	<1	0	1	10	0	10	2	850

DATE	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
JUL												
12...	9	0	30	5	.0	.0	10	3	2	2	30	<3

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPER-ATURE (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)
MAR					
14...	1400	1.0	.68	168	.31
24...	1600	5.0	1.0	358	.97
APR					
16...	1630	10.5	3.7	361	3.6
17...	1245	8.0	5.1	546	7.5
17...	1420	6.0	5.1	418	5.8
MAY					
23...	1250	13.0	2.1	99	.56
JUN					
04...	1500	17.0	1.6	78	.34
JUL					
12...	1030	15.0	.73	110	.22
SEP					
26...	1030	14.0	.30	12	.01

06307528 PRAIRIE DOG CREEK NEAR BIRNEY, MT

LOCATION.--Lat 45°17'28", long 106°40'56", in SE¼NW¼NW¼ sec.26, T.6 S., R.41 E., Rosebud County, Hydrologic Unit 10090101, on right bank, about 3.3 mi (5.3 km) above confluence with Tongue River, and 8.6 mi (13.8 km) west of Birney.

DRAINAGE AREA.--19.6 mi² (50.8 km²) revised.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1978 to September 1979.

GAGE.--Water-stage recorder. Altitude of gage is 3,390 ft (1,033 m), from topographic map.

REMARKS.--Water-discharge records poor. Several diversions for stock ponds above station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 78 ft³/s (2.21 m³/s) June 18, 1979, gage height, 2.06 ft (0.628 m); no flow on many days.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 78 ft³/s (2.21 m³/s) June 18, gage height, 2.06 ft (0.628 m); no flow on many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1		.00	.00	.00	.00	.00	.00	2.3	1.5	.50	.30	.00
2		.00	.00	.00	.00	.00	.00	2.2	1.3	.50	.30	.00
3		.00	.00	.00	.00	.00	.00	2.1	1.2	.50	.30	.00
4		.00	.00	.00	.00	.00	.00	2.3	1.2	.50	.25	.00
5		.00	.00	.00	.00	.00	.00	2.4	1.2	.50	.25	.00
6		.00	.00	.00	.00	.00	.00	2.4	1.2	.50	.25	.00
7		.00	.00	.00	.00	.00	.01	2.1	1.2	.50	.25	.00
8		.00	.00	.00	.00	.00	.01	2.3	.90	.50	.25	.00
9		.00	.00	.00	.00	.00	.01	2.3	.90	.50	.30	.00
10		.00	.00	.00	.00	.00	.07	2.3	.90	.50	.25	.00
11		.00	.00	.00	.00	.00	.62	2.1	.90	.41	.35	.00
12		.00	.00	.00	.00	.00	.30	2.2	.90	.35	.35	.20
13		.00	.00	.00	.00	.00	.25	2.1	.90	.35	.30	.20
14		.00	.03	.00	.00	.00	.41	2.0	.90	.41	.20	.11
15		.00	.07	.00	.00	.00	.30	1.9	.90	.35	.15	.07
16		.00	.04	.00	.00	.00	.69	1.9	.90	.48	.15	.07
17		.00	.01	.00	.00	.00	1.2	1.9	.90	.48	.15	.07
18		.00	.01	.00	.00	.00	1.2	1.9	3.0	.41	.15	.02
19		.00	.01	.00	.00	.00	2.1	1.7	.99	.35	.11	.02
20		.00	.01	.00	.00	.00	1.9	1.6	.95	.35	.15	.02
21		.00	.01	.00	.00	.00	1.7	1.5	.95	.35	.20	.01
22		.00	.01	.00	.00	.00	1.7	1.6	.90	.35	.30	.02
23		.00	.01	.00	.00	.00	2.2	1.2	.84	.35	.25	.02
24		.00	.01	.00	.00	.00	2.2	1.4	.76	.35	.20	.00
25		.00	.00	.00	.00	.06	2.1	1.4	.62	.30	.20	.00
26		.00	.00	.00	.00	.02	2.4	1.3	.50	.25	.20	.00
27		.00	.00	.00	.00	.01	2.5	1.3	.50	.25	.07	.00
28		.00	.00	.00	.00	.00	2.3	1.3	.50	.25	.00	.00
29		.00	.00	.00	---	.00	2.3	1.5	.50	.30	.00	.00
30		.00	.00	.00	---	.00	2.2	1.7	.50	.35	.00	.00
31		---	.00	.00	---	.00	---	1.5	---	.35	.00	---
TOTAL		.00	.22	.00	.00	.09	30.67	57.7	29.31	12.39	6.10	.83
MEAN		.000	.007	.000	.000	.003	1.02	1.86	.98	.40	.20	.028
MAX		.00	.07	.00	.00	.06	2.5	2.4	3.0	.50	.35	.20
MIN		.00	.00	.00	.00	.00	.00	1.2	.50	.25	.00	.00
AC-FT		.00	.4	.00	.00	.2	61	114	58	25	12	1.6

06307528 PRAIRIE DOG CREEK NEAR BIRNEY, MT

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1978 to current year.

INSTRUMENTATION.--Automatic suspended-sediment pumping sampler since June 1979.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L) (00310)
DEC										
15...	1030	.07	--	1663	8.0	2.5	.0	3.7	28	--
APR										
16...	1450	.95	1	1320	7.8	24.0	17.0	5.4	63	.6
19...	1700	2.6	--	1120	8.6	11.0	9.0	5.6	55	--
MAY										
09...	1350	2.3	68	1320	8.7	6.0	9.5	12.0	122	--
JUN										
04...	1535	1.1	0	1380	8.6	21.0	26.0	5.2	73	--
JUL										
12...	1603	.37	0	1600	9.2	27.5	26.5	4.4	62	.6
AUG										
24...	1000	.10	61	1720	8.6	21.5	16.0	8.4	95	--

DATE	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)
DEC									
15...	940	560	78	180	110	1.6	9.0	380	750
APR									
16...	700	310	64	130	70	1.2	5.6	390	440
19...	620	280	91	95	45	.8	6.2	340	340
MAY									
09...	750	--	85	130	65	1.0	5.5	--	460
JUN									
04...	730	380	62	140	74	1.2	7.1	350	510
JUL									
12...	760	410	42	160	100	1.6	9.3	350	640
AUG									
24...	820	410	50	170	120	1.8	9.1	410	730

DATE	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	BROMIDE DIS-SOLVED (MG/L AS BR) (71870)	IODIDE, DIS-SOLVED (MG/L AS I) (71865)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)
DEC									
15...	8.4	.3	--	--	14	1380	1.88	.26	.27
APR									
16...	5.6	.4	--	--	6.4	957	1.30	2.45	.02
19...	5.0	.3	--	--	8.3	796	1.08	5.59	.26
MAY									
09...	5.4	.3	--	--	6.8	--	--	--	.14
JUN									
04...	6.3	.4	.0	.00	5.2	1020	1.39	3.03	.05
JUL									
12...	7.5	.5	.1	.00	1.9	1170	1.59	1.17	.01
AUG									
24...	9.0	.5	--	--	4.5	1340	1.82	.36	.00

06307528 PRAIRIE DOG CREEK NEAR BIRNEY, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITROGEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CARBON, ORGANIC DISSOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUSPENDED TOTAL (MG/L AS C) (00689)	BORON, DISSOLVED (UG/L AS B) (01020)	IRON, DISSOLVED (UG/L AS FE) (01046)
DEC 15...	.01	.28	.29	.01	5.5	5.3	.0	140	10
APR 16...	.02	.34	.36	.01	--	6.7	--	110	10
19...	.07	.61	.68	.05	--	--	--	70	980
MAY 09...	.01	.37	.38	.00	--	--	--	90	10
JUN 04...	.03	.30	.33	.02	--	7.8	.5	120	10
JUL 12...	.00	.49	.49	.02	--	8.3	.7	190	10
AUG 24...	.00	.30	.30	.02	--	--	--	150	<10

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DISSOLVED (UG/L AS AS) (01000)	BERYLLIUM, TOTAL RECOVERABLE (UG/L AS BE) (01012)	BERYLLIUM, DISSOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD) (01027)	CADMIUM DISSOLVED (UG/L AS CD) (01025)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)	COPPER, DISSOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)
JUL 12...	1603	1	2	0	<1	0	3	10	0	3	1	50

DATE	LEAD, TOTAL RECOVERABLE (UG/L AS PB) (01051)	LEAD, DISSOLVED (UG/L AS PB) (01049)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOVERABLE (UG/L AS HG) (71900)	MERCURY DISSOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI) (01067)	NICKEL, DISSOLVED (UG/L AS NI) (01065)	SELENIUM, TOTAL (UG/L AS SE) (01147)	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)	ZINC, DISSOLVED (UG/L AS ZN) (01090)
JUL 12...	17	0	10	4	.0	.0	8	2	2	2	10	6

06307528 PRAIRIE DOG CREEK NEAR BIRNEY, MT--Continued

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPERATURE (DEG C) (00010)	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)
DEC					
15...	1030	.0	.07	82	.02
APR					
16...	1450	17.0	.95	78	.20
17...	1120	13.0	1.1	170	.50
19...	1700	9.0	2.6	271	1.9
MAY					
09...	1350	9.5	2.3	28	.17
15...	1600	24.0	2.1	88	.50
23...	1545	23.0	1.5	21	.09
JUN					
04...	1535	26.0	1.1	27	.08
06...	1200	19.0	1.2	13	.04
08...	2300	--	.91	106	.26
09...	0500	--	.91	74	.18
10...	1100	--	.90	118	.29
19...	0810	12.5	1.0	106	.29
19...	0815	12.5	1.0	75	.20
26...	0840	20.0	.76	51	.10
26...	0845	20.0	.76	6	.01
27...	1100	--	.50	75	.10
28...	0500	--	.50	86	.12
29...	1100	--	.50	29	.04
30...	0500	--	.50	35	.05
JUL					
10...	1110	21.0	.48	7	.01
10...	1115	21.0	.48	7	.03
11...	1100	--	.48	5	.02
12...	1100	--	.41	4	.00
12...	1603	26.5	.37	38	.04
13...	1100	--	.41	3	.00
14...	1100	--	.35	22	.02
15...	1100	--	.35	12	.01
16...	1100	--	.48	39	.05
17...	1100	--	.48	19	.02
19...	1100	--	.35	32	.03
24...	1100	--	.35	22	.02
25...	1110	20.5	.35	52	.05
25...	1115	20.5	.35	24	.02
26...	1100	--	.25	27	.02
27...	1100	--	.25	106	.07
28...	1100	--	.25	11	.01
29...	1100	--	.30	87	.07
30...	1100	--	.35	19	.02
AUG					
02...	1100	--	.30	23	.02
03...	1100	--	.30	24	.02
04...	1100	--	.25	26	.02
05...	1100	--	.25	27	.02
07...	1100	--	.25	86	.06
08...	1100	--	.35	27	.03
10...	1100	--	.62	127	.21
23...	1100	--	.15	244	.10
24...	0955	16.0	.10	3	.00
24...	1000	16.0	.10	24	.01
24...	1100	--	.10	401	.11
31...	1100	--	.03	7	.00
SEP					
01...	1100	--	.03	29	.00
02...	1100	--	.03	17	.00
03...	1100	--	.03	20	.00
04...	1100	--	.03	5	.00
05...	1100	--	.03	2	.00

06307560 EAST TRAIL CREEK NEAR OTTER, MT

LOCATION.--Lat 45°04'25", long 106°24'11", in NW¼SE¼NE¼ sec.12, T.9 S., R.43 E., Bighorn County, Hydrologic Unit 10090101, 1.1 mi (1.8 km) upstream from mouth, and 14 mi (23 km) southwest of Otter.

DRAINAGE AREA.--31.3 mi^2 (81.1 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1976 to current year.

GAGE.--Water-stage recorder, crest-stage gages, and Parshall flume. Altitude of gage is 3,570 ft (1,088 m), from topographic map.

REMARKS.--Water-discharge records poor. No known regulation or diversions above station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 216 ft^3/s (6.12 m^3/s) May 18, 1978, gage height, 4.54 ft (1.384 m), from rating curve extended above 35 ft^3/s (0.99 m^3/s); no flow on many days each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2.6 ft^3/s (0.074 m^3/s) Mar. 29, gage height, 1.38 ft (0.421 m); no flow on many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.16	.00	.00	.00	.00	.00
2	.00	.00	.00	.00	.00	.00	.07	.00	.00	.00	.00	.00
3	.00	.00	.00	.00	.00	.00	.05	.00	.00	.00	.00	.00
4	.00	.00	.00	.00	.00	.00	.07	.00	.00	.00	.00	.00
5	.00	.00	.00	.00	.00	.00	.07	.00	.00	.00	.00	.00
6	.00	.00	.00	.00	.00	.00	.05	.00	.00	.00	.00	.00
7	.00	.00	.00	.00	.00	.00	.25	.00	.00	.00	.00	.00
8	.00	.00	.00	.00	.00	.00	.16	.00	.00	.00	.00	.00
9	.00	.00	.00	.00	.00	.00	.10	.00	.00	.00	.00	.00
10	.00	.00	.00	.00	.00	.00	.12	.02	.00	.00	.00	.00
11	.00	.00	.00	.00	.00	.00	.13	.02	.00	.00	.00	.00
12	.00	.00	.00	.00	.00	.00	.13	.01	.00	.00	.00	.00
13	.00	.00	.00	.00	.00	.00	.21	.01	.00	.00	.00	.00
14	.00	.00	.00	.00	.00	.00	.16	.01	.00	.00	.00	.00
15	.00	.00	.00	.00	.00	.00	.10	.01	.00	.00	.00	.00
16	.00	.00	.00	.00	.00	.00	.08	.00	.00	.00	.00	.00
17	.00	.00	.00	.00	.00	.00	.08	.00	.00	.00	.00	.00
18	.00	.00	.00	.00	.00	.01	.06	.00	.00	.00	.00	.00
19	.00	.00	.00	.00	.00	.10	.12	.00	.00	.00	.00	.00
20	.00	.00	.00	.00	.00	.05	.31	.00	.00	.00	.00	.00
21	.00	.00	.00	.00	.00	.00	.08	.00	.00	.00	.00	.00
22	.00	.00	.00	.00	.00	.00	.07	.00	.00	.00	.00	.00
23	.00	.00	.00	.00	.00	.10	.06	.00	.00	.00	.00	.00
24	.00	.00	.00	.00	.00	.20	.06	.00	.00	.00	.00	.00
25	.00	.00	.00	.00	.00	.40	.04	.00	.00	.00	.00	.00
26	.00	.00	.00	.00	.00	.70	.03	.00	.00	.00	.00	.00
27	.00	.00	.00	.00	.00	1.0	.03	.00	.00	.00	.00	.00
28	.00	.00	.00	.00	.00	1.3	.02	.00	.00	.00	.00	.00
29	.00	.00	.00	.00	---	1.0	.01	.00	.00	.00	.00	.00
30	.00	.00	.00	.00	---	.67	.01	.17	.00	.00	.00	.00
31	.00	---	.00	.00	---	.35	---	.07	---	.00	.00	---
TOTAL	.00	.00	.00	.00	.00	5.88	2.89	.32	.00	.00	.00	.00
MEAN	.000	.000	.000	.000	.000	.19	.096	.010	.000	.000	.000	.000
MAX	.00	.00	.00	.00	.00	1.3	.31	.17	.00	.00	.00	.00
MIN	.00	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	.00
AC-FT	.00	.00	.00	.00	.00	12	5.7	.6	.00	.00	.00	.00

CAL YR 1978 TOTAL 260.86 MEAN .71 MAX 108 MIN .00 AC-FT 517
WTR YR 1979 TOTAL 9.09 MEAN .025 MAX 1.3 MIN .00 AC-FT 18

06307560 EAST TRAIL CREEK NEAR OTTER, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1977 to current year.

INSTRUMENTATION.--Automatic water-quality pumping sampler since Mar. 25, 1979.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNESIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORPTION RATIO (00931)	POTASSIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKALINITY (MG/L AS CACO3) (00410)
MAR										
25...	0300	.40	1400	1000	160	240	520	6.1	11	350
25...	1200	.40	1400	1100	160	250	540	6.2	12	360
25...	2130	.40	1400	1000	160	250	560	6.4	9.1	360

DATE	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLORIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUORIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTITUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
MAR									
25...	2100	17	.2	7.0	3270	4.45	3.53	130	40
25...	2200	17	.2	6.7	3400	4.62	3.67	130	40
25...	2300	18	.2	6.4	3550	4.80	3.81	100	90

06307570 HANGING WOMAN CREEK BELOW HORSE CREEK, NEAR BIRNEY, MT

LOCATION.--Lat 45°08'02", long 106°29'00", on section line 17/20, T.8 S., R.43 E., Bighorn County, Hydrologic Unit 10090101, at county road bridge, 0.6 mi (1.0 km) downstream from Horse Creek, 0.8 mi (1.3 km) upstream from Circle Bar Draw, and 13.2 mi (21.2 km) southeast of Birney.

DRAINAGE AREA.--321 mi² (832 km²).

PERIOD OF RECORD.--Water years 1978 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L) (00310)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)
NOV 01...	0820	.44	0	4520	8.3	-1.0	3.5	10.8	92	--	1200	750
DEC 20...	0910	.62	0	5600	8.1	-17.0	.0	9.8	76	--	1600	1000
FEB 21...	1235	.66	3	4410	7.8	-5.0	.0	9.2	72	--	1200	960
MAR 28...	1255	5.4	1	4610	8.1	10.0	2.5	11.0	92	--	1200	990
APR 25...	1355	3.6	1	7010	8.3	14.0	11.0	9.6	98	2.0	1900	1400
MAY 24...	0850	.94	0	6570	8.3	18.5	17.5	8.5	100	--	1800	1300
JUN 22...	1010	.50	3	5800	8.3	23.0	19.5	7.0	85	--	1600	1100
JUL 26...	1000	.53	52	4800	8.3	22.0	20.5	6.2	77	--	1400	1000
SEP 12...	0930	.39	1	3530	8.2	13.0	16.0	7.4	84	--	1000	600

DATE	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	BROMIDE DIS-SOLVED (MG/L AS BR) (71870)	IODIDE, DIS-SOLVED (MG/L AS I) (71865)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)
NOV 01...	130	210	640	8.1	17	440	2100	22	.8	.2	.00	9.3
DEC 20...	170	280	780	8.5	19	560	2500	33	.7	--	--	15
FEB 21...	150	210	570	7.0	13	280	2100	31	.7	.1	.01	16
MAR 28...	140	210	700	8.7	12	220	2500	13	.3	--	--	6.4
APR 25...	160	370	1200	12	14	520	3800	20	.4	.1	.01	2.8
MAY 24...	140	350	1000	10	15	510	3200	25	.6	--	--	5.1
JUN 22...	170	280	870	9.5	15	460	2700	32	.6	--	--	4.6
JUL 26...	140	260	740	8.5	10	420	2500	23	.7	--	--	6.6
SEP 12...	120	170	500	6.9	16	400	1700	16	.7	.1	.01	4.5

06307570 HANGING WOMAN CREEK BELOW HORSE CREEK, NEAR BIRNEY, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C) (00689)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
NOV												
01...	3390	4.61	4.03	.03	.01	.56	.57	.01	7.3	.7	400	20
DEC												
20...	4130	5.62	6.91	.25	.00	.35	.35	.02	--	--	340	20
FEB												
21...	3260	4.43	5.81	.33	.10	.25	.41	.01	6.0	.5	330	30
MAR												
28...	3710	5.05	54.1	.29	.20	.78	1.0	.03	--	--	150	60
APR												
25...	5880	8.00	57.2	.01	.04	1.1	1.1	.02	21	.6	220	40
MAY												
24...	5040	6.85	12.8	.01	.15	.95	1.1	.06	--	--	370	30
JUN												
22...	4350	5.92	5.87	.02	.05	.76	.81	.02	--	--	570	20
JUL												
26...	3930	5.34	5.62	.01	.02	.70	.72	.04	--	--	470	10
SEP												
12...	2770	3.77	2.92	.03	.03	.57	.60	.02	--	--	320	10

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)
APR												
25...	1355	1	1	0	0	1	0	10	10	8	0	430
SEP												
12...	0930	3	3	10	0	0	1	10	0	2	2	300

DATE	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
APR												
25...	33	0	160	120	.0	.0	12	4	1	1	40	30
SEP												
12...	7	0	110	90	.0	.0	7	4	1	1	10	10

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPER-ATURE (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)
NOV					
01...	0820	3.5	.44	8	.01
FEB					
21...	1235	.0	.66	10	.02
MAR					
28...	1255	2.5	5.8	6	.09
APR					
25...	1355	11.0	5.6	31	.50
MAY					
24...	0650	17.5	.94	172	.44
JUN					
22...	1010	19.5	.50	56	.08
JUL					
26...	1000	20.5	.53	65	.09
SEP					
12...	0930	16.0	.39	42	.04

06307600 HANGING WOMAN CREEK NEAR BIRNEY, MT

LOCATION.--Lat 45°17'57", long 106°30'28", in N½NW¼SE¼ sec.19, T.6 S., R.43 E., Rosebud County, Hydrologic Unit 10090101, on right bank 0.5 mi (0.8 km) downstream from bridge on Birney-Otter road, 1.6 mi (2.6 km) downstream from East Fork, 1.2 mi (1.9 km), revised, south of Birney, and 3.3 mi (5.3 km) upstream from mouth.

DRAINAGE AREA.--470 mi² (1,217 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1973 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 3,150 ft (960 m), from topographic map.

REMARKS.--Water-discharge records poor. Diversions for irrigation of about 1,240 acres (5.02 km²) above station.

AVERAGE DISCHARGE.--6 years, 6.45 ft³/s (0.183 m³/s), 4,670 acre-ft/yr (5.76 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,060 ft³/s (58.3 m³/s) May 19, 1978, gage height, 11.56 ft (3.523 m), from rating curve extended above 360 ft³/s (10.2 m³/s) on basis of slope-area measurement of peak flow; minimum, 0.08 ft³/s (0.002 m³/s) May 27, 28, 1976.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 76 ft³/s (2.15 m³/s) July 29, gage height, 3.96 ft (1.207 m), no peaks above base of 100 ft³/s (2.83 m³/s); minimum daily, 0.67 ft³/s (0.019 m³/s) July 22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.93	1.5	2.2	1.7	1.8	2.6	4.0	3.8	1.8	2.1	1.6	1.6
2	1.0	1.5	2.2	1.7	1.8	2.6	3.8	3.6	1.7	2.0	1.2	1.4
3	1.0	1.3	2.3	1.8	1.8	2.8	3.4	3.6	1.7	2.0	1.2	1.3
4	.86	1.4	2.3	1.8	1.8	2.8	7.3	3.4	2.3	1.8	1.4	1.3
5	1.0	1.4	2.2	1.7	1.8	2.9	4.8	3.8	1.8	2.0	1.7	1.2
6	1.1	1.2	2.1	1.6	1.8	3.4	4.4	4.0	1.8	1.8	2.0	1.2
7	1.2	1.3	2.0	1.6	1.8	4.8	4.0	2.6	2.1	1.4	2.1	1.2
8	1.0	1.4	2.0	1.7	2.0	6.2	3.8	3.4	2.0	1.2	2.5	1.2
9	1.1	2.1	1.8	1.6	2.0	6.8	4.6	4.4	2.2	1.1	2.5	1.1
10	1.1	2.5	2.0	1.6	2.0	6.2	5.3	4.0	2.2	.93	2.5	1.0
11	1.1	2.3	2.2	1.4	2.1	6.8	5.7	4.2	2.0	.86	2.5	1.1
12	1.2	2.2	2.2	1.4	2.1	7.6	5.5	4.0	2.0	.79	2.2	1.2
13	1.2	2.5	2.2	1.5	2.2	9.5	4.8	4.0	2.3	.79	1.5	1.2
14	1.6	2.5	2.1	1.5	2.2	9.2	5.3	6.0	2.9	.73	1.2	1.2
15	1.4	2.3	2.1	1.5	2.3	9.9	6.5	6.8	2.9	.73	1.5	1.3
16	1.3	2.3	2.1	1.5	2.3	8.9	5.7	6.5	2.9	.86	1.6	1.3
17	1.7	2.2	2.1	1.4	2.5	9.5	6.0	6.8	3.1	1.1	2.1	1.3
18	1.5	2.2	2.2	1.4	2.3	9.5	5.7	6.2	3.2	.93	2.3	1.4
19	1.3	2.3	2.2	1.5	2.3	9.2	7.3	6.0	3.8	.86	2.3	1.4
20	1.3	2.3	2.2	1.6	2.3	8.2	10	5.7	3.4	.79	2.2	1.4
21	1.4	2.3	2.2	1.6	2.3	8.5	8.9	5.3	3.1	.73	2.2	1.3
22	1.5	2.5	2.1	1.8	2.5	9.9	9.5	5.0	3.1	.67	1.8	1.2
23	1.8	2.6	2.0	1.8	2.3	9.2	8.9	5.0	2.9	.73	1.6	1.1
24	1.5	2.3	2.1	1.8	2.5	8.5	3.6	4.8	2.8	.86	1.6	1.1
25	1.4	2.5	2.1	1.6	2.5	8.5	3.6	4.8	2.6	1.3	1.6	1.1
26	1.4	2.5	2.1	1.7	2.5	7.9	4.0	4.6	2.5	1.2	1.3	1.0
27	2.1	2.5	2.0	1.6	2.6	4.6	3.4	3.6	2.6	1.1	1.2	1.0
28	1.6	2.5	1.8	1.7	2.5	3.2	3.4	2.5	2.6	1.1	1.7	1.2
29	1.5	2.2	1.8	1.7	---	2.8	4.0	2.9	2.5	42	2.3	1.1
30	1.5	2.2	1.8	1.8	---	3.2	3.8	4.0	2.3	7.9	2.1	1.1
31	1.5	---	1.8	1.8	---	4.0	---	2.2	---	2.6	1.8	---
TOTAL	41.09	62.8	64.5	50.4	60.9	199.7	161.0	137.7	75.1	84.96	57.3	36.5
MEAN	1.33	2.09	2.08	1.63	2.18	6.44	5.37	4.44	2.50	2.74	1.85	1.22
MAX	2.1	2.6	2.3	1.8	2.6	9.9	10	6.8	3.8	42	2.5	1.6
MIN	.86	1.2	1.8	1.4	1.8	2.6	3.4	2.2	1.7	.67	1.2	1.0
AC-FT	82	125	128	100	121	396	319	273	149	169	114	72

CAL YR 1978 TOTAL 4196.77 MEAN 11.5 MAX 1730 MIN .15 AC-FT 8320
WTR YR 1979 TOTAL 1031.95 MEAN 2.83 MAX 42 MIN .67 AC-FT 2050

06307600 HANGING WOMAN CREEK NEAR BIRNEY, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1975 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L) (00310)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)
NOV												
01...	1050	1.3	0	3020	8.4	11.0	3.5	10.6	89	--	920	430
DEC												
21...	1030	2.2	1	3200	8.1	-2.0	.0	11.4	88	--	980	440
MAR												
06...	1400	2.8	3	3150	8.1	12.0	.0	11.7	89	--	880	560
29...	1235	3.0	3	2820	8.3	15.0	6.5	12.0	111	--	850	410
APR												
26...	1250	3.5	3	3660	8.4	11.0	8.0	10.3	97	1.9	1100	650
MAY												
24...	1155	4.9	0	3600	8.3	24.0	19.0	6.2	98	--	1100	620
JUN												
21...	1130	3.1	1	3510	8.2	27.5	20.0	7.4	90	--	910	370
JUL												
25...	1235	1.5	3	3000	8.3	25.0	23.0	5.4	70	--	920	410
SEP												
12...	1205	1.2	3	3110	8.3	15.0	16.0	7.6	85	--	900	400

DATE	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	BROMIDE DIS-SOLVED (MG/L AS BR) (71870)	IODIDE, DIS-SOLVED (MG/L AS I) (71865)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)
NOV												
01...	120	150	390	5.6	18	490	1300	19	.1	.9	.03	14
DEC												
21...	130	160	440	6.1	18	540	1400	17	.8	--	--	18
MAR												
06...	120	140	380	5.6	14	320	1300	12	1.0	.1	.04	17
29...	110	140	370	5.5	14	440	1200	12	.8	--	--	11
APR												
26...	150	180	510	6.6	15	470	1700	17	.8	.1	.00	8.7
MAY												
24...	130	180	500	6.7	18	450	1600	18	.9	--	--	9.0
JUN												
21...	150	130	560	8.1	18	540	1500	24	.9	--	--	12
JUL												
25...	120	150	400	5.7	18	510	1300	18	1.1	.1	.01	18
SEP												
12...	130	140	410	5.9	18	500	1400	20	1.0	.1	.01	14

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, KJEL-DAHL, TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C) (00689)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
NOV												
01...	2310	3.14	8.11	.02	.01	.50	.51	.01	8.5	.3	320	20
DEC												
21...	2510	3.41	14.9	.22	.04	.59	.63	.02	--	--	310	30
MAR												
06...	2180	2.96	16.5	.29	.07	.20	.27	.02	6.2	.3	300	30
29...	2120	2.88	17.2	.02	.01	.47	.48	.01	--	--	230	10
APR												
26...	2860	3.89	27.0	.02	.02	.50	.52	.02	9.9	.7	270	10
MAY												
24...	2730	3.71	36.1	.00	.02	.51	.53	.04	--	--	320	20
JUN												
21...	2720	3.70	22.8	.01	.01	.70	.71	.02	--	--	530	10
JUL												
25...	2330	3.17	9.44	.03	.05	.41	.46	.03	13	1.1	350	10
SEP												
12...	2430	3.30	7.87	.01	.02	.48	.50	.04	--	--	330	10

06307600 HANGING WOMAN CREEK NEAR BIRNEY, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)
APR												
26...	1250	1	1	0	0	0	0	10	0	9	1	680
SEP												
12...	1205	1	3	0	0	1	0	20	10	3	2	480

DATE	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
APR												
26...	--	0	150	100	.0	.0	12	0	1	1	40	30
SEP												
12...	13	0	80	20	.0	.0	7	3	1	1	10	10

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPER-ATURE (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)
NOV					
01...	1050	3.5	1.3	12	.04
DEC					
21...	1030	.0	2.2	86	.51
MAR					
06...	1400	.0	2.8	34	.26
29...	1235	6.5	3.0	22	.18
APR					
26...	1250	8.0	3.5	64	.60
MAY					
24...	1155	19.0	4.9	90	1.2
JUN					
21...	1130	20.0	3.1	45	.38
JUL					
25...	1235	23.0	1.5	192	.78
SEP					
12...	1205	16.0	1.2	108	.35

06307610 TONGUE RIVER BELOW HANGING WOMAN CREEK, NEAR BIRNEY, MT

LOCATION.--Lat 45°20'19", long 106°31'28", in SW¼SE¼SE¼ sec.1, T.6 S., R.42 E., Rosebud County, Hydrologic Unit 10090102, at bridge on county road, 1.2 mi (1.9 km) northwest of Birney, 2.5 mi (4.0 km) downstream from Hanging Woman Creek, and at mile 148.8 (239.4 km).

DRAINAGE AREA.--2,533 mi² (6,560 km²).

PERIOD OF RECORD.--Water years 1974 to September 1979 (discontinued).

REMARKS.--Flow regulated by Tongue River Reservoir, diversions for irrigation, and many small reservoirs in Wyoming.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)
NOV												
02...	0945	123	0	858	8.5	7.0	5.5	11.0	92	389	150	66
21...	1130	115	0	969	8.5	-20.0	.0	12.0	91	410	180	70
DEC												
21...	1230	318	13	890	8.4	2.0	.0	12.3	95	400	140	75
JAN												
17...	1200	254	0	941	8.2	-14.0	.0	10.6	81	420	150	78
MAR												
07...	0810	243	3	1030	8.5	5.0	.0	13.2	100	420	150	87
28...	1015	259	1	1070	8.7	10.0	4.0	12.0	104	450	200	82
APR												
26...	1045	272	3	1130	8.6	12.0	8.0	10.6	99	410	180	66
MAY												
24...	1340	606	0	1010	8.5	26.0	20.0	9.0	110	440	220	75
JUN												
21...	1000	512	1	472	8.7	24.0	19.0	8.0	95	200	79	40
JUL												
25...	1010	502	3	497	8.3	21.5	21.0	6.6	82	220	80	47
AUG												
22...	1035	507	3	626	8.7	25.0	21.0	7.6	94	250	82	48
SEP												
13...	0805	451	3	702	8.4	14.0	16.0	8.2	91	250	72	63

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	BROMIDE DIS-SOLVED (MG/L AS BR) (71870)	IODIDE DIS-SOLVED (MG/L AS I) (71865)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)
NOV												
02...	52	53	1.2	4.6	230	250	4.2	.3	--	--	5.2	574
21...	56	64	1.4	5.1	230	280	5.2	.3	--	--	6.4	625
DEC												
21...	52	50	1.1	4.3	260	270	4.7	.2	--	--	5.9	619
JAN												
17...	55	55	1.2	5.0	270	260	5.1	.3	--	--	8.3	629
MAR												
07...	58	61	1.3	4.8	270	270	5.5	.3	--	--	9.0	650
28...	59	66	1.4	5.1	250	340	5.5	.3	--	--	1.9	710
APR												
26...	60	68	1.5	5.7	230	320	5.2	.3	--	--	2.1	666
MAY												
24...	62	68	1.4	5.1	220	340	4.9	.4	--	--	3.2	691
JUN												
21...	24	26	.8	2.5	120	120	2.4	.2	--	--	3.4	291
JUL												
25...	25	27	.8	4.2	140	150	2.6	.3	--	--	5.9	346
AUG												
22...	32	34	.9	3.3	170	140	2.9	.3	--	--	.3	363
SEP												
13...	23	37	1.0	4.1	180	210	3.1	.3	.0	.00	11	460

06307610 TONGUE RIVER BELOW HANGING WOMAN CREEK, NEAR BIRNEY, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, KJEL-DAHL, TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C) (00689)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
NOV											
02...	.78	191	.00	.01	.23	.24	.00	7.8	.3	120	<10
21...	.85	194	.05	.01	.31	.32	.01	--	--	130	30
DEC											
21...	.84	551	.15	.01	.25	.26	.01	--	--	120	<10
JAN											
17...	.86	431	.33	.10	.42	.52	.02	4.6	.4	110	10
MAR											
07...	.86	426	.55	.06	.21	.27	.04	--	--	150	30
28...	.97	497	.15	.01	.41	.42	.01	--	--	100	10
APR											
26...	.91	489	.07	.01	.48	.49	.02	6.2	.4	110	10
MAY											
24...	.94	1130	.01	.01	.45	.46	.02	--	--	160	10
JUN											
21...	E.40	402	1.9	.04	.43	.47	.02	3.9	1.0	120	20
JUL											
25...	.47	469	.09	.06	.94	1.0	.52	--	--	20	10
AUG											
22...	.49	497	.01	.00	.40	.40	.02	--	--	110	10
SEP											
13...	E.63	560	.28	.02	.74	.76	.04	--	--	100	<10

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)
JUN												
21...	1000	5	2	0	0	0	0	40	20	4	1	420
SEP												
13...	0805	3	2	0	<1	1	<1	10	0	3	2	360

DATE	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
JUN												
21...	16	1	40	10	.1	.0	7	7	0	0	20	10
SEP												
13...	7	0	40	4	.0	.0	4	0	1	1	0	4

06307610 TONGUE RIVER BELOW HANGING WOMAN CREEK, NEAR BIRNEY, MT--Continued

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPER-ATURE (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
NOV						
02...	0945	3.5	123	4	1.3	72
21...	1130	.0	115	16	5.0	81
DEC						
21...	1230	.0	318	59	51	--
JAN						
17...	1200	.0	254	16	11	--
MAR						
07...	0810	.0	243	13	8.5	--
28...	1015	4.0	259	84	59	98
APR						
26...	1045	8.0	272	32	24	75
MAY						
24...	1340	20.0	606	74	121	90
JUN						
21...	1000	19.0	512	32	4[illegible]	86
JUL						
25...	1010	21.0	502	812	1100	99
AUG						
22...	1035	21.0	507	52	71	97
SEP						
13...	0805	16.0	451	24	29	80

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

PERIPHYTON

DATE	TIME	LENGTH OF EXPO-SURE (DAYS) (00022)	PERI-PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M (00573)	PERI-PHYTON BIOMASS ASH WEIGHT G/SQ M (00572)	CHLOR-A PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2) (70957)	CHLOR-B PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2) (70958)	BIOMASS CHLORO-PHYLL RATIO PERI-PHYTON (UNITS) (70950)
NOV							
02...	0945	35	14.2	11.9	.280	.000	8214
MAY							
24...	1340	28	--	--	.950	.070	--
JUN							
21...	1000	28	1.65	1.57	.650	.000	123

06307665 OTTER CREEK NEAR OTTER, MT

LOCATION.--Lat 45°08'15", long 106°07'22", in NE¼NE¼SE¼ sec.18, T.8 S., R.46 E., Powder River County, Hydrologic Unit 10090102, 0.2 mi (0.3 km) downstream from Pasture Creek, 5.5 mi (8.8 km) upstream from Bradshaw Creek and 6.2 mi (10.0 km) southeast of Otter.

DRAINAGE AREA.--40.9 mi² (105.9 km²).

PERIOD OF RECORD.--Water years 1978 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L) (00310)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)
NOV 15...	1530	.27	0	6700	7.9	-7.0	.0	9.8	76	--	2500	1900
DEC 27...	1530	.07	2	6500	7.6	-3.0	.0	5.4	43	--	2200	1600
FEB 13...	1500	.03	1	5850	7.9	4.5	3.0	9.3	80	--	2100	1600
MAR 28...	1300	1.2	1	5750	8.1	4.0	6.5	10.8	101	--	2000	1500
APR 12...	1315	1.2	2	5600	8.2	2.5	3.5	11.8	102	1.1	1900	1400
MAY 10...	1315	.90	1	6100	8.2	20.0	12.0	12.0	126	--	2000	1400
JUN 07...	1340	.89	2	5950	8.1	11.0	14.5	10.8	120	--	2200	1700
JUL 12...	0855	.10	13	6600	7.9	19.0	22.5	6.8	89	--	2400	1900
SEP 05...	0905	.03	0	6800	8.0	17.0	11.5	6.2	64	--	2500	1900

DATE	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	BROMIDE DIS-SOLVED (MG/L AS BR) (71870)	IODIDE, DIS-SOLVED (MG/L AS I) (71865)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)
NOV 15...	190	480	920	8.1	23	590	3800	28	.5	.7	.01	15
DEC 27...	91	470	890	8.3	23	580	3300	27	.5	--	--	14
FEB 13...	150	430	770	7.2	18	530	3200	23	.4	.2	.01	12
MAR 28...	130	400	740	7.3	17	520	2900	21	.5	.2	.00	11
APR 12...	140	380	690	6.9	13	500	2900	21	.5	.2	.00	9.8
MAY 10...	73	430	800	7.9	17	540	2900	24	.6	--	--	8.2
JUN 07...	220	410	790	7.3	18	500	3400	26	.5	--	--	4.9
JUL 12...	200	470	900	7.9	22	570	3700	28	.6	--	--	6.9
SEP 05...	190	490	900	7.8	21	580	4200	28	.5	.2	.00	8.9

06307665 OTTER CREEK NEAR OTTER, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO- GEN, KJEL- DAHL, TOTAL (MG/L AS N) (00625)	PHOS- PHORUS, TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS- PENDED TOTAL (MG/L AS C) (00689)	BORON, DIS- SOLVED (UG/L AS B) (01020)	IRON, DIS- SOLVED (UG/L AS FE) (01046)
NOV 15...	5810	7.90	4.24	.12	.01	.70	.71	.01	11	.5	650	30
DEC 27...	5170	7.03	.96	.05	.01	.65	.66	.02	--	--	660	150
FEB 13...	4920	6.69	.40	.01	.01	.57	.58	.03	9.8	--	530	40
MAR 28...	4530	6.16	14.7	.09	.12	.54	.66	.00	23	.6	470	20
APR 12...	4460	6.07	14.5	.04	.03	.61	.64	.00	17	2.0	450	40
MAY 10...	4580	6.23	11.1	.00	.02	.87	.89	.02	--	--	560	40
JUN 07...	5170	7.03	12.4	.04	.03	.93	.96	.02	--	--	570	30
JUL 12...	5670	7.71	1.53	.01	.00	.66	.66	.02	--	--	660	50
SEP 05...	4790	6.51	.39	.02	.03	.09	.12	.02	--	--	820	50

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS- SOLVED (UG/L AS AS) (01000)	BERYL- LIUM, TOTAL RECOV- ERABLE (UG/L AS BE) (01012)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) (01027)	CADMIUM DIS- SOLVED (UG/L AS CD) (01025)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) (01034)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) (01042)	COPPER, DIS- SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE) (01045)
APR 12...	1315	1	0	0	0	1	0	20	10	1	0	410
SEP 05...	0905	2	2	10	0	0	0	20	20	1	1	250

DATE	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) (01051)	LEAD, DIS- SOLVED (UG/L AS PB) (01049)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) (01055)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) (71900)	MERCURY DIS- SOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI) (01067)	NICKEL, DIS- SOLVED (UG/L AS NI) (01065)	SELE- NIUM, TOTAL (UG/L AS SE) (01147)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) (01092)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)
APR 12...	2	0	300	280	.1	.0	6	3	1	1	30	30
SEP 05...	3	0	290	290	.0	.0	7	2	0	0	20	20

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPER- ATURE (DEG C) (00010)	STREAM- FLOW, INSTAN- TANEOUS (CFS) (00061)	SEDI- MENT, SUS- PENDED (MG/L) (80154)	SEDI- MENT DIS- CHARGE, SUS- PENDED (T/DAY) (80155)
NOV 15...	1530	.0	.27	63	.05
DEC 27...	1530	.0	.07	38	.01
FEB 13...	1500	3.0	.03	46	.00
MAR 28...	1300	6.5	1.2	6	.02
APR 12...	1315	3.5	1.2	26	.08
MAY 10...	1315	12.0	.90	40	.10
JUN 07...	1340	14.5	.89	70	.17
JUL 12...	0855	22.5	.10	62	.02
SEP 05...	0905	11.5	.03	154	.01

06307717 OTTER CREEK BELOW FIFTEENMILE CREEK, NEAR OTTER, MT

LOCATION.--Lat 45°23'29", long 106°08'37", in N½ sec.23, T.5 S., R.45 E., Powder River County, Hydrologic Unit 10090102, on county road bridge, 1.0 mi (1.6 km) downstream from Fifteenmile Creek, and 13.1 mi (21.1 km) northeast of Otter.
DRAINAGE AREA.--451 mi² (1,167 km²).
PERIOD OF RECORD.--Water years 1978 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L) (00310)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)
NOV 16...	0900	4.0	0	3380	8.1	-7.0	.0	11.4	87	--	1300	700
DEC 27...	1350	3.7	2	3700	7.8	-4.0	.0	10.7	83	--	1300	750
FEB 13...	1235	.97	1	3300	8.0	8.5	.0	9.5	74	--	1100	540
MAR 28...	1035	22	1	3040	8.2	2.0	.0	11.0	85	1.1	1100	640
APR 12...	1115	8.8	70	3390	8.3	1.5	2.0	12.4	101	--	1200	660
MAY 10...	0905	9.3	1	3490	8.2	8.0	8.0	11.6	109	--	1200	710
JUN 07...	1140	7.5	2	3190	8.2	14.5	15.5	7.8	87	--	1200	700
JUL 12...	0715	3.8	1	3110	8.4	18.0	22.5	4.6	59	--	1000	610
SEP 05...	0715	2.1	2	3160	8.3	7.0	19.0	5.3	63	--	1000	560

DATE	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	BROMIDE DIS-SOLVED (MG/L AS BR) (71870)	IODIDE, DIS-SOLVED (MG/L AS I) (71865)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)
NOV 16...	140	220	400	4.9	20	560	1500	14	.6	--	--	13
DEC 27...	190	210	410	4.9	20	590	1500	15	.7	--	--	19
FEB 13...	130	190	400	5.2	18	570	1400	14	.7	.1	.01	19
MAR 28...	130	190	370	4.8	17	470	1400	12	.5	.1	.01	11
APR 12...	130	210	450	5.7	13	530	1500	15	.6	.1	.00	7.2
MAY 10...	120	230	430	5.3	18	540	1500	14	.6	--	--	6.0
JUN 07...	91	230	400	5.1	18	470	1400	51	.5	--	--	.3
JUL 12...	71	210	440	5.9	22	430	1400	18	.6	--	--	1.2
SEP 05...	89	190	420	5.8	18	440	1500	16	.5	.1	.00	1.9

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, KJEL-DAHL, TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C) (00689)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
NOV 16...	2640	3.59	28.5	.01	.01	.49	.50	.03	7.3	.6	380	20
DEC 27...	2720	3.70	27.2	.33	.15	.58	.73	.02	--	--	380	30
FEB 13...	2510	3.41	6.57	.62	.15	.53	.68	.04	23	--	350	20
MAR 28...	2410	3.28	143	.33	.28	.63	.91	.05	8.9	.6	280	20
APR 12...	2650	3.60	63.0	.03	.03	.78	.81	.04	16	3.6	360	30
MAY 10...	2640	3.59	66.3	.01	.01	.73	.74	.05	--	--	400	20
JUN 07...	2470	3.36	50.0	.06	.03	.51	.54	.02	--	--	370	20
JUL 12...	2420	3.29	24.8	.01	.01	.64	.65	.02	--	--	370	0
SEP 05...	2500	3.40	14.2	.02	.10	.22	.32	.03	--	--	410	30

06307717 OTTER CREEK BELOW FIFTEENMILE CREEK, NEAR OTTER, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DISSOLVED (UG/L AS AS) (01000)	BERYLLIUM, TOTAL RECOVERABLE (UG/L AS BE) (01012)	BERYLLIUM, DISSOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD) (01027)	CADMIUM DISSOLVED (UG/L AS CD) (01025)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)	COPPER, DISSOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)
MAR 28...	1035	1	1	0	0	1	0	10	0	6	0	770
SEP 05...	0715	2	2	0	0	0	0	10	10	1	1	170

DATE	LEAD, TOTAL RECOVERABLE (UG/L AS PB) (01051)	LEAD, DISSOLVED (UG/L AS PB) (01049)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOVERABLE (UG/L AS HG) (71900)	MERCURY DISSOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI) (01067)	NICKEL, DISSOLVED (UG/L AS NI) (01065)	SELENIUM, TOTAL (UG/L AS SE) (01147)	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)	ZINC, DISSOLVED (UG/L AS ZN) (01090)
MAR 28...	8	0	370	340	.1	.0	4	4	1	1	30	20
SEP 05...	0	0	70	60	.0	.0	5	2	0	0	0	10

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPERATURE (DEG C) (00010)	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)
NOV 16...	0900	.0	4.0	107	1.2
DEC 27...	1350	.0	3.7	108	1.1
FEB 13...	1235	.0	.97	47	.12
MAR 28...	1035	.0	22	124	7.4
APR 12...	1115	2.0	8.8	34	.81
MAY 10...	0905	8.0	9.3	64	1.6
JUN 07...	1140	15.5	7.5	132	2.7
JUL 12...	0715	22.5	3.8	16	.16
SEP 05...	0715	19.0	2.1	24	.14

06307735 HOME CREEK NEAR ASHLAND, MT

LOCATION.--Lat 45°32'35", long 106°11'39", in SE¼NE¼SE¼ sec.29, T.3 S., R.45 E., Powder River County, Hydrologic Unit 10090102, 150 ft (45.7 m) west of Otter Creek road culvert, 1.0 mi (1.6 km) upstream from mouth, approximately 2.0 mi (3.2 km) south of Highway 212, and 5.1 mi (8.2 km) southeast of Ashland.

DRAINAGE AREA.--58.7 mi² (152.0 km²).

PERIOD OF RECORD.--Water years 1977 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPECIFIC CONDUCTANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)
NOV 16...	0800	.15	0	4030	7.8	-6.0	.0	5.4	41	1200	430	120
DEC 26...	1420	.03	0	3600	7.7	-1.0	.0	6.3	48	1100	890	110
FEB 14...	1030	.01	2	3430	7.9	-4.5	.0	7.2	55	1000	400	110
MAR 28...	0840	.28	1	3670	7.7	-4.0	1.0	5.6	44	--	--	100
APR 11...	1550	.21	72	3570	7.9	.0	2.0	9.3	76	1000	380	96
MAY 10...	0730	.14	1	3780	8.1	1.0	5.0	7.4	64	1100	450	96
JUN 07...	0955	.11	3	3670	8.0	7.0	12.0	6.4	66	1000	310	100
JUL 11...	1240	.03	1	3420	8.4	24.0	20.5	8.8	109	1000	350	90
SEP 04...	1440	.02	2	3350	8.3	23.0	20.0	8.8	108	940	290	95

DATE	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY (MG/L AS CACO3) (00410)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	BROMIDE DISSOLVED (MG/L AS BR) (71870)	IODIDE, DISSOLVED (MG/L AS I) (71865)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)
NOV 16...	230	570	7.0	24	820	1600	14	1.1	--	--	17	3070
DEC 26...	200	500	6.6	21	--	--	5.0	1.0	--	--	16	--
FEB 14...	180	490	6.7	17	620	1400	7.4	.9	.1	.22	19	2600
MAR 28...	--	500	--	19	580	1500	10	.8	.2	.01	12	--
APR 11...	190	490	6.7	14	640	1400	12	.9	.1	.00	11	2600
MAY 10...	220	550	7.1	19	700	1500	12	1.1	--	--	8.4	2830
JUN 07...	190	540	7.3	20	720	1400	9.6	1.1	--	--	9.8	2700
JUL 11...	190	500	6.9	17	660	1400	9.9	1.0	--	--	10	2620
SEP 04...	170	500	7.1	19	650	1500	9.4	.9	--	--	17	2700

DATE	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITROGEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITROGEN, KJELDAHL, TOTAL (MG/L AS N) (00625)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC DISSOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUSPENDED TOTAL (MG/L AS C) (00689)	BORON, DISSOLVED (UG/L AS B) (01020)	IRON, DISSOLVED (UG/L AS FE) (01046)
NOV 16...	4.18	1.24	.38	.07	.68	.75	.03	11	.4	700	170
DEC 26...	2.14	.13	.40	.14	.72	.86	.04	--	--	580	300
FEB 14...	3.54	.07	1.0	.16	.32	.48	.08	6.0	--	450	120
MAR 28...	3.52	1.96	.23	.38	.72	1.1	.06	15	1.3	540	130
APR 11...	3.54	1.47	.18	.24	.86	1.1	.04	16	--	540	60
MAY 10...	3.85	1.07	.20	.01	.79	.80	.04	--	--	690	80
JUN 07...	3.67	.80	.13	.06	1.3	1.4	.06	--	--	800	100
JUL 11...	3.56	.21	.18	.10	.70	.80	.05	--	--	620	20
SEP 04...	3.67	.15	--	.20	.11	.31	.08	--	.3	610	10

06307735 HOME CREEK NEAR ASHLAND, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)
APR												
11...	1550	1	1	0	0	0	0	20	0	1	1	980
SEP												
04...	1440	5	5	0	0	0	0	10	10	2	1	860

DATE	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
APR												
11...	11	0	1100	1000	.1	.0	9	5	0	0	40	30
SEP												
04...	3	0	460	320	.0	.0	7	2	1	1	30	10

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPER-ATURE (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)
NOV					
16...	0800	.0	.15	118	.05
DEC					
26...	1420	.0	.03	81	.01
FEB					
14...	1030	.0	.01	100	.00
MAR					
28...	0840	1.0	.28	12	.01
APR					
11...	1550	2.0	.21	8	.00
MAY					
10...	0730	5.0	.14	40	.02
JUN					
07...	0955	12.0	.11	134	.04
JUL					
11...	1240	20.5	.03	46	.00
SEP					
04...	1440	20.0	.02	33	.00

06307740 OTTER CREEK AT ASHLAND, MT

LOCATION.--Lat 45°35'18", long 106°15'17", in NE¼NE¼SE¼ sec.11, T.3 S., R.44 E., Rosebud County, Hydrologic Unit 10090102, on left bank 200 ft (60 m) downstream from bridge on U.S. Highway 212, 2.5 mi (4.0 km) upstream from mouth and 0.3 mi (0.5 km) southeast of Ashland.

DRAINAGE AREA.--707 mi² (1,831 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1972 to current year.

GAGE.-- Water-stage recorder. Altitude of gage is 2,920 ft (890 m), from topographic map.

REMARKS.--Water-discharge records poor. Diversions for irrigation of about 4,200 acres (17.0 km²) above station.

AVERAGE DISCHARGE.--7 years, 8.71 ft³/s (0.247 m³/s), 6,310 acre-ft/yr (7.78 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 425 ft³/s (12.0 m³/s) Mar. 21, 1978, gage height, 8.65 ft (2.637 m), backwater from beaver dam; no flow on many days in 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, undetermined, no peaks above base of 50 ft³/s (1.42 m³/s); maximum gage height, 6.03 ft (1.838 m) Mar. 15 (backwater from ice); minimum daily discharge, 1.5 ft³/s (0.042 m³/s) Sept. 27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.9	4.2	3.4	2.2	2.7	7.0	30	14	11	5.7	3.5	2.8
2	1.7	4.5	2.7	2.6	2.9	6.0	28	14	12	5.4	8.5	3.0
3	1.9	4.5	2.5	2.5	3.2	6.6	24	12	12	5.3	14	2.9
4	1.9	3.9	3.1	2.4	3.4	7.0	22	13	11	5.5	8.7	2.8
5	2.0	3.8	3.0	2.4	3.7	8.0	22	13	9.5	5.3	6.6	2.6
6	2.2	3.6	2.7	2.6	3.9	9.0	20	13	9.0	5.1	5.4	2.4
7	3.0	3.8	2.4	2.6	4.2	10	21	13	9.0	4.2	4.7	2.4
8	2.6	3.9	2.3	2.9	4.0	9.4	22	12	8.2	4.2	4.3	2.2
9	2.6	5.0	3.7	2.9	4.4	8.5	21	12	7.6	4.5	3.9	2.0
10	2.9	6.1	4.0	2.8	4.8	12	20	14	8.0	4.5	3.8	2.0
11	2.9	4.4	4.3	3.1	4.5	15	19	13	8.5	4.5	3.5	2.1
12	2.8	4.6	4.8	3.0	4.7	16	19	12	9.7	4.5	3.2	2.2
13	2.8	6.2	4.3	2.8	5.1	17	19	13	8.5	4.1	3.3	2.4
14	4.3	6.0	4.7	2.7	5.0	35	19	13	7.8	4.3	3.3	2.2
15	3.6	6.3	4.3	3.0	4.5	100	18	13	7.4	4.2	3.3	2.4
16	3.2	6.4	4.2	3.7	4.1	110	19	12	6.9	4.1	3.2	2.4
17	4.7	6.4	4.3	4.0	4.6	88	19	11	6.9	4.1	3.2	2.2
18	3.6	5.0	4.4	4.2	5.4	76	17	11	6.9	4.1	3.2	2.2
19	3.6	3.6	4.3	4.4	6.0	88	17	10	6.8	4.1	3.2	2.2
20	3.6	3.5	4.3	4.5	5.7	70	19	9.5	7.0	3.8	3.2	2.1
21	3.6	3.4	4.5	4.6	5.4	70	21	9.2	6.8	3.6	3.2	2.2
22	3.8	3.7	4.7	4.5	5.2	72	24	8.7	7.2	3.6	3.3	2.4
23	4.8	4.0	5.0	4.2	5.0	78	21	8.2	6.3	3.5	3.2	2.6
24	4.5	4.5	5.4	4.2	6.0	84	21	7.6	6.1	4.2	3.2	2.2
25	3.9	5.6	5.3	4.2	7.6	76	19	7.6	6.1	19	2.9	2.2
26	3.9	5.2	5.2	4.0	7.6	57	17	7.8	6.3	16	2.9	2.0
27	5.9	4.9	4.2	3.8	7.4	46	17	7.2	6.3	5.6	3.0	1.6
28	4.3	5.2	3.5	3.5	7.6	35	17	7.0	6.3	4.3	3.5	1.5
29	4.1	4.5	3.0	3.3	---	33	15	7.6	5.9	3.8	3.6	1.6
30	4.3	4.0	2.6	3.0	---	37	14	10	6.6	3.8	3.0	1.7
31	4.2	---	2.1	2.8	---	34	---	9.7	---	3.6	2.9	---
TOTAL	105.3	141.1	119.2	103.6	138.6	1502.5	601	338.3	237.6	160.5	130.7	67.5
MEAN	3.40	4.70	3.85	3.34	4.95	42.0	20.0	10.9	7.92	5.18	4.22	2.25
MAX	5.9	6.4	5.4	4.6	7.6	110	30	14	12	19	14	3.0
MIN	1.7	3.4	2.1	2.2	2.7	6.0	14	7.0	5.9	3.5	2.9	1.5
AC-FT	209	280	236	205	275	2980	1190	671	471	318	259	134

CAL YR 1978 TOTAL 4175.60 MEAN 11.4 MAX 336 MIN .90 AC-FT 8280
WTR YR 1979 TOTAL 3445.90 MEAN 9.44 MAX 110 MIN 1.5 AC-FT 6830

06307740 OTTER CREEK AT ASHLAND, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1975 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)
OCT												
11...	0920	3.0	1	2910	8.4	14.5	10.5	8.8	88	870	340	86
DEC												
26...	1225	5.3	0	3400	8.0	-1.0	.0	11.6	88	1100	450	130
FEB												
14...	0800	5.0	2	3190	7.9	-1.5	.0	11.7	90	970	380	110
MAR												
17...	1550	89	2	1160	7.9	5.5	.5	11.7	90	140	0	47
APR												
12...	0745	19	70	3390	8.4	-.5	3.0	11.6	96	1100	560	120
MAY												
09...	1445	13	68	3490	8.3	10.0	9.5	10.2	99	1200	650	110
JUN												
07...	0830	9.5	3	3320	8.3	9.0	16.5	6.1	69	980	520	64
JUL												
11...	1030	4.4	1	3190	8.4	21.0	21.5	6.2	78	980	480	64
SEP												
04...	1245	2.8	2	2410	8.5	25.0	20.0	8.3	101	750	290	68

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	BROMIDE DIS-SOLVED (MG/L AS BR) (71870)	IODIDE, DIS-SOLVED (MG/L AS I) (71865)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)
OCT												
11...	160	380	5.6	20	530	1200	13	.7	.2	.00	6.8	2190
DEC												
26...	200	430	5.5	22	700	1400	15	.7	--	--	17	2640
FEB												
14...	170	420	5.9	18	590	1300	9.3	.8	.1	.04	20	2400
MAR												
17...	5.0	130	4.8	14	190	400	7.5	.3	--	--	8.7	736
APR												
12...	200	460	6.0	14	540	1500	14	.7	.1	.01	7.1	2640
MAY												
09...	220	460	5.8	19	550	1500	15	.6	--	--	4.9	2660
JUN												
07...	200	440	6.1	21	460	1500	14	.5	--	--	2.8	2520
JUL												
11...	200	410	5.7	21	500	1400	14	.8	--	--	5.3	2420
SEP												
04...	140	340	5.4	19	460	990	12	.7	.1	.00	7.6	1850

DATE	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C) (00689)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
OCT											
11...	2.98	17.7	.04	.00	.54	.54	.02	9.2	.7	510	20
DEC											
26...	3.59	37.8	.47	.08	.47	.55	.02	--	--	450	20
FEB											
14...	3.26	32.4	.77	.17	.31	.48	.03	16	.8	420	20
MAR											
17...	1.00	177	.38	.99	1.0	2.0	.22	--	--	150	150
APR											
12...	3.59	135	.05	.02	.59	.61	.01	8.5	--	400	20
MAY											
09...	3.62	93.4	.00	.00	.78	.78	.05	--	--	470	20
JUN											
07...	3.43	64.6	.02	.05	.81	.86	.11	--	--	510	10
JUL											
11...	3.29	28.7	.05	.03	.43	.46	.07	--	--	470	10
SEP											
04...	2.52	14.0	.02	.02	.29	.31	.05	--	.7	480	20

06307740 OTTER CREEK AT ASHLAND, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)
APR 12...	0745	1	1	0	0	1	0	20	10	8	1	350
SEP 04...	1245	2	2	0	0	0	0	10	10	1	2	450

DATE	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
APR 12...	10	0	320	290	.1	.0	9	4	1	1	30	20
SEP 04...	2	3	90	30	.0	.0	5	3	1	1	190	10

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPER-ATURE (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT 11...	0920	10.5	3.0	40	.32	--
DEC 26...	1225	.0	5.3	86	1.2	--
FEB 14...	0800	.0	5.0	63	.85	--
MAR 17...	1550	.5	89	118	28	96
APR 12...	0745	3.0	19	19	.97	--
MAY 09...	1445	9.5	13	86	3.0	--
JUN 07...	0830	16.5	9.5	170	4.4	--
JUL 11...	1030	21.5	4.4	86	1.0	--
SEP 04...	1245	20.0	2.8	84	.64	--

06307830 TONGUE RIVER BELOW BRANDENBERG BRIDGE, NEAR ASHLAND, MT

LOCATION.--Lat 45°52'18", long 106°11'17", in NE¼SW¼NW¼ sec.6, T.1 N., R.45 E., Custer County, Hydrologic Unit 10090102, on left bank 3.1 mi (5.0 km) downstream from Goodale Creek, 6.5 mi (10.5 km) downstream from Brandenberg Bridge, and 21 mi (34 km) north of Ashland.

DRAINAGE AREA.--4,062 mi² (10,521 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1973 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 2,710 ft (826 m), from topographic map.

REMARKS.--Water-discharge records good except those for winter period, which are poor. Flow regulated by Tongue River Reservoir (see p.611,612), and many small reservoirs in Wyoming (combined capacity, about 15,000 acre-ft or 18.5 hm³). Diversions for irrigation of about 73,000 acres (295 km²) above station.

AVERAGE DISCHARGE.--6 years, 576 ft³/s (16.31 m³/s), 417,300 acre-ft/yr (515 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,340 ft³/s (236 m³/s) May 22, 1978, gage height, 9.96 ft (3.036 m); minimum daily, 45 ft³/s (1.27 m³/s) Nov. 30, 1975.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,710 ft³/s (48.4 m³/s) July 25, gage height, 5.21 ft (1.588 m); minimum daily, 105 ft³/s (2.97 m³/s) Nov. 21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	407	171	230	280	270	290	435	431	1260	597	559	524
2	403	171	300	285	275	270	423	431	1340	587	539	534
3	407	171	390	290	285	265	415	380	1380	597	534	524
4	407	171	460	290	295	270	411	452	1340	599	529	520
5	411	169	455	290	290	275	411	501	1260	556	520	515
6	407	167	425	285	280	280	411	529	1210	525	520	510
7	407	169	400	285	260	285	399	534	1080	512	501	510
8	403	169	430	285	250	290	399	529	1060	513	483	482
9	399	165	450	280	250	300	395	539	1060	512	483	496
10	399	150	470	280	250	315	391	549	1050	505	483	467
11	395	140	490	290	250	380	395	549	1030	461	469	491
12	276	130	500	300	240	390	403	544	1000	441	458	491
13	246	125	510	300	240	420	395	539	800	446	460	491
14	222	121	500	300	240	520	388	539	540	444	473	478
15	207	130	480	300	250	600	388	539	520	444	447	491
16	198	140	440	310	240	600	384	539	500	436	431	491
17	193	150	360	315	250	590	384	529	500	435	431	464
18	191	130	350	325	250	550	380	534	490	408	464	415
19	184	110	340	340	260	470	391	529	480	399	520	399
20	182	110	330	350	270	470	399	524	490	396	529	411
21	180	105	350	360	280	470	395	524	500	391	534	399
22	180	110	370	340	280	500	388	529	490	400	520	388
23	177	120	380	330	270	500	388	524	480	409	524	395
24	177	125	390	320	270	480	384	539	490	461	515	384
25	175	135	390	310	275	500	384	554	475	861	529	344
26	175	150	370	300	280	430	380	595	490	767	539	330
27	173	160	330	295	280	430	380	738	505	579	539	282
28	173	175	300	290	285	430	380	762	512	544	554	276
29	173	190	290	280	---	473	365	856	553	539	544	279
30	171	200	290	275	---	456	419	921	582	783	529	276
31	171	---	280	275	---	447	---	1020	---	605	529	---
TOTAL	8269	4429	12050	9355	7415	12946	11864	17802	23487	16154	15689	13077
MEAN	267	148	389	302	265	418	395	574	783	521	506	436
MAX	411	200	510	360	295	600	435	1020	1380	861	559	534
MIN	171	105	230	275	240	265	365	380	475	391	431	276
AC-FT	16400	8780	23900	18560	14710	25680	23530	35310	46590	32040	31120	25940

CAL YR 1978 TOTAL 315562 MEAN 865 MAX 7600 MIN 105 AC-FT 626000
WTR YR 1979 TOTAL 152537 MEAN 418 MAX 1380 MIN 105 AC-FT 302600

06307830 TONGUE RIVER BELOW BRANDENBERG BRIDGE, NEAR ASHLAND, MT--Continued

WATER-QUALITY RECORDS

LOCATION.--Samples collected from Brandenberg Bridge on county road, 1.7 mi (2.7 km) north of Brandenberg and 6.5 mi (10.5 km) upstream from gaging station.

PERIOD OF RECORD.--Water years 1974 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: October 1974 to current year.
SUSPENDED-SEDIMENT DISCHARGE: October 1974 to current year.

REMARKS.--Sediment loads estimated Nov. 17 to Dec. 20, Dec. 25 to Jan. 7, Jan. 13 to Feb. 18. Flow affected by ice during most of winter months.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum daily, 29.5°C June 24, July 18, 1977; minimum daily, 0.0°C on many days during winter periods.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 6,400 mg/L July 26, 1979; minimum daily mean, 1 mg/L Oct. 18, 24, 1976.
SEDIMENT LOADS: Maximum daily, 27,200 tons (24,700 megagrams) May 19, 1978; minimum daily, 0.47 ton (0.43 megagram) Nov. 15-17, 1975.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum daily, 28.5°C July 8, 20, 21; minimum daily, 0.0°C on many days during November to March.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 6,400 mg/L July 26; minimum daily mean, 7 mg/L Oct. 22.
SEDIMENT LOADS: Maximum daily, 13,300 tons (12,100 megagrams) July 26; minimum daily, 3.4 tons (3.1 megagrams) Oct. 22.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPECIFIC CONDUCTANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	OXYGEN DEMAND, BIOCHEMICAL, 5 DAY (MG/L) (00310)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)
OCT												
05...	0800	409	0	830	8.4	6.0	10.0	10.3	99	--	350	130
DEC												
21...	1030	350	2	1010	8.2	3.0	.0	12.0	91	--	430	150
FEB												
21...	1115	290	1	1100	7.9	-8.0	.0	9.4	72	--	470	180
MAR												
29...	0600	464	1	1150	8.3	.0	1.0	11.3	89	--	480	210
APR												
25...	0730	387	0	1260	8.3	4.5	8.5	10.0	94	--	470	220
MAY												
24...	0815	521	0	1090	8.2	15.5	16.5	8.1	91	--	470	240
JUN												
27...	0830	506	1	578	8.1	20.0	21.0	7.9	97	.8	260	110
JUL												
25...	0820	479	51	550	8.4	16.0	21.5	7.2	89	--	220	65

DATE	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY (MG/L AS CACO3) (00410)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	BROMIDE DISSOLVED (MG/L AS BR) (71870)	IODIDE, DISSOLVED (MG/L AS I) (71865)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)
OCT												
05...	64	45	48	1.1	4.4	220	220	4.5	.3	.1	.12	6.9
DEC												
21...	79	57	61	1.3	5.2	280	290	5.6	.3	--	--	6.9
FEB												
21...	90	59	61	1.2	4.5	290	300	5.5	.3	.0	.01	10
MAR												
29...	88	64	90	1.8	5.6	270	400	6.1	.3	.0	.00	5.6
APR												
25...	71	70	97	2.0	6.9	250	430	6.2	.4	--	--	1.8
MAY												
24...	79	66	76	1.5	6.5	230	360	5.8	.4	--	--	3.1
JUN												
27...	54	30	36	1.0	3.3	150	160	2.5	.2	.0	.00	4.9
JUL												
25...	40	28	33	1.0	3.2	150	130	2.4	.2	--	--	5.6

06307830 TONGUE RIVER BELOW BRANDENBERG BRIDGE, NEAR ASHLAND, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, KJEL-DAHL, TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C) (00689)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
OCT												
05...	526	.72	581	.01	.02	.50	.52	.02	--	.2	120	20
DEC												
21...	674	.92	637	.18	.01	.36	.37	.01	--	--	140	10
FEB												
21...	705	.96	552	.49	.09	.43	.52	.00	4.0	--	120	10
MAR												
29...	822	1.12	1030	.18	.05	.38	.43	.03	7.8	5.1	130	0
APR												
25...	834	1.13	871	.02	.01	1.9	1.9	.05	--	--	150	<10
MAY												
24...	735	1.00	1030	.00	.03	.45	.48	.02	--	--	120	10
JUN												
27...	381	.52	521	.01	.04	.25	.29	.07	5.1	.4	70	10
JUL												
25...	333	.45	431	.01	.01	.72	.73	.03	--	--	60	10

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)
JUN												
27...	0850	1	1	0	0	1	1	0	0	15	1	910

DATE	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
JUN												
27...	12	0	60	10	.0	.0	5	4	0	0	20	10

06307830 TONGUE RIVER BELOW BRANDENBERG BRIDGE, NEAR ASHLAND, MT--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	.0	.0	---	---	14.0	18.5	---	---	---
2	---	8.5	.0	.0	.0	---	---	---	20.5	25.5	---	23.0
3	---	---	.0	.0	.0	.0	7.0	---	---	---	27.0	---
4	13.5	8.5	.0	.0	.0	---	---	16.5	22.5	24.5	26.5	---
5	13.5	---	.0	.0	---	---	---	---	23.0	28.0	---	---
6	---	4.5	.0	.0	---	1.5	10.0	---	---	27.5	---	---
7	---	7.0	.0	.0	---	2.0	9.5	15.0	---	---	---	---
8	14.5	---	.0	.5	.0	1.5	12.0	---	17.0	28.5	24.0	23.5
9	14.0	---	.0	.0	.0	---	14.0	---	18.5	---	23.0	23.0
10	---	---	.0	.0	---	1.5	9.5	13.0	21.0	---	24.0	22.5
11	---	---	.0	.0	---	---	---	---	25.0	20.0	25.0	---
12	11.5	---	---	.0	---	1.5	---	15.0	---	---	22.5	27.0
13	10.5	---	---	.0	---	---	---	---	---	---	---	26.0
14	10.5	.0	---	.0	.0	1.0	11.5	19.0	23.0	---	---	---
15	---	.0	---	.0	.0	2.0	13.0	---	23.0	23.0	---	18.0
16	13.0	---	---	.0	.0	2.0	16.0	---	23.0	26.5	24.0	---
17	---	---	---	.0	.0	1.0	17.5	19.0	20.5	26.5	25.0	18.5
18	13.0	---	---	.0	1.5	1.0	17.0	19.5	---	27.0	23.0	20.5
19	---	.0	---	.0	---	---	13.0	19.0	19.0	27.5	---	---
20	12.5	.0	.0	---	1.0	1.5	---	---	---	28.5	20.5	18.5
21	---	.0	---	---	---	2.0	15.0	22.0	23.0	28.5	21.0	19.0
22	10.5	.0	.0	---	---	1.5	---	19.0	22.5	25.5	21.5	20.0
23	10.0	.0	---	.0	.0	1.5	---	---	---	---	---	18.5
24	9.5	.0	.5	.0	.0	---	12.0	25.0	26.0	26.0	23.0	19.5
25	9.5	.0	.0	.0	---	---	14.0	24.0	26.0	22.5	20.0	19.5
26	10.0	.0	.0	.0	---	---	---	---	25.5	21.5	22.0	19.0
27	---	.0	.0	.0	---	---	15.0	25.5	24.0	25.5	22.5	19.5
28	---	---	.0	.0	1.0	2.0	13.0	17.5	27.0	27.0	23.0	18.0
29	---	---	.0	.0	---	7.0	---	---	26.0	---	23.0	17.0
30	8.0	.5	.0	.0	---	7.5	11.5	15.5	---	26.0	24.0	16.0
31	---	---	.0	.0	---	7.5	---	15.5	---	25.5	21.0	---
MEAN	11.5	2.0	.0	.0	.0	2.5	13.0	18.5	22.5	26.0	23.0	20.5

WTR YR 1979 MEAN 11.5 MAX 28.5 MIN .0

YELLOWSTONE RIVER BASIN

06307830 TONGUE RIVER BELOW BRANDENBERG BRIDGE, NEAR ASHLAND, MT--Continued

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	20	22	42	19	---	25	---	23	---	7.3	107	84
2	16	17	68	31	---	32	---	23	---	7.4	94	69
3	15	16	54	25	---	53	---	23	---	7.7	83	59
4	14	15	38	18	---	62	---	23	---	16	73	53
5	16	18	39	18	---	61	---	23	---	16	74	55
6	13	14	49	22	---	57	---	23	---	15	74	56
7	12	13	28	13	---	54	---	23	---	14	37	28
8	11	12	19	8.7	---	58	32	25	---	13	100	78
9	13	14	21	9.4	---	61	26	20	---	13	131	106
10	16	17	25	10	---	76	29	22	---	20	88	75
11	18	19	32	12	---	93	32	25	---	20	58	60
12	19	14	43	15	---	108	31	25	---	13	57	60
13	28	19	54	18	---	124	---	24	---	13	121	137
14	18	11	62	20	---	121	---	24	---	13	262	368
15	13	7.3	65	23	---	104	---	24	---	13	179	290
16	16	8.6	47	18	---	95	---	25	---	6.5	206	334
17	20	10	---	20	---	78	---	26	---	6.8	134	213
18	19	9.8	---	14	---	66	---	26	---	6.8	113	168
19	16	7.9	---	12	---	55	---	28	33	23	118	150
20	13	6.4	---	8.9	---	53	---	28	84	61	152	193
21	9	4.4	---	8.5	71	67	---	29	30	23	188	239
22	7	3.4	---	8.9	58	58	---	28	24	18	474	640
23	11	5.3	---	9.7	50	51	---	27	35	26	579	782
24	11	5.3	---	10	51	54	---	26	50	36	600	778
25	11	5.2	---	11	---	53	---	25	64	48	609	822
26	10	4.7	---	12	---	50	---	24	78	59	520	604
27	9	4.2	---	13	---	36	---	24	92	70	533	619
28	10	4.7	---	14	---	24	---	16	106	82	477	554
29	11	5.1	---	15	---	23	---	7.6	---	---	215	275
30	8	3.7	---	16	---	23	---	7.4	---	---	141	174
31	18	8.3	---	---	---	23	---	7.4	---	---	100	121
TOTAL	---	325.3	---	453.1	---	1898	---	704.4	---	667.5	---	8244

DAY	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	82	96	116	135	454	1570	97	156	2180	3290	96	136
2	70	80	126	147	535	1940	96	152	960	1400	86	124
3	57	64	103	106	486	1810	95	153	290	418	74	105
4	48	53	92	112	403	1460	97	157	207	296	64	90
5	51	57	103	139	336	1140	86	129	190	267	60	83
6	60	67	112	160	286	934	69	98	177	249	57	78
7	71	76	119	172	231	674	65	90	142	192	56	77
8	65	70	119	170	188	538	66	91	130	170	56	73
9	57	61	106	154	180	515	66	91	125	163	52	70
10	65	69	93	138	194	550	60	82	114	149	58	76
11	73	78	87	129	186	517	51	63	106	134	54	72
12	71	77	85	125	163	440	45	54	100	124	38	50
13	66	70	86	125	138	298	42	51	104	129	68	90
14	57	60	85	124	88	128	42	50	100	128	76	98
15	46	48	85	124	59	83	42	50	92	111	42	56
16	49	51	92	134	49	66	40	47	80	93	34	45
17	56	58	103	147	48	65	35	41	72	84	32	40
18	61	63	109	157	47	62	34	37	105	132	32	36
19	75	79	92	131	46	60	47	51	131	184	29	31
20	79	85	73	103	45	60	45	48	123	176	29	32
21	77	82	85	120	44	59	38	40	118	170	32	34
22	74	78	109	156	45	60	37	40	109	153	26	27
23	72	75	114	161	49	64	38	42	99	140	21	22
24	71	74	93	135	51	67	49	61	96	133	22	23
25	72	75	102	153	51	65	2120	7860	92	131	20	19
26	74	76	161	259	53	70	6400	13300	88	128	24	21
27	76	78	279	556	61	83	2600	4060	94	137	26	21
28	70	72	328	675	59	82	210	308	101	151	58	43
29	66	65	301	696	71	106	550	800	94	138	53	40
30	82	93	336	836	94	148	800	1690	99	141	48	36
31	---	---	381	1050	---	---	2500	4080	102	146	---	---
TOTAL	---	2130	---	7529	---	13714	---	33972	---	9457	---	1748

TOTAL LOAD FOR YEAR: 80842.3 TONS.

06307830 TONGUE RIVER BELOW BRANDENBERG BRIDGE, NEAR ASHLAND, MT--Continued

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPER-ATURE (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70340)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)	SED. SUSP. FALL DIAM. % FINER THAN .125 MM (70343)	SED. SUSP. FALL DIAM. % FINER THAN .250 MM (70344)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT											
05...	0800	10.0	409	15	17	--	--	--	--	--	85
NOV											
14...	1300	.0	122	27	8.9	--	--	--	--	--	76
JAN											
18...	0955	.0	325	30	26	--	--	--	--	--	73
MAR											
29...	0600	1.0	464	172	215	--	--	--	--	--	92
APR											
25...	0730	8.5	387	42	44	--	--	--	--	--	63
MAY											
24...	0815	16.5	521	120	169	--	--	--	--	--	88
31...	0915	13.0	1010	409	1120	37	59	86	96	100	--
JUN											
27...	0830	21.0	506	71	97	--	--	--	--	--	87
JUL											
25...	0820	21.5	479	67	87	--	--	--	--	--	90

06308160 PUMPKIN CREEK NEAR LOESCH, MT

LOCATION.--Lat 45°42'40", long 105°43'50", in NW¼ sec.31, T.1 S., R.49 E., Powder River County, Hydrologic Unit 10090102, at bridge on county road, 0.9 mi (1.4 km) northeast of Loesch, and 9.0 mi (14.5 km) upstream from Little Pumpkin Creek.

DRAINAGE AREA.--170 mi^2 (440 km^2), revised.

PERIOD OF RECORD.--Water years 1976 to July 1979 (discontinued).

REMARKS.--Scheduled samplings were not possible during periods of no flow.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	OXYGEN DEMAND, BIOCHEMICAL, 5 DAY (MG/L) (00310)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)
DEC 27...	1105	E.05	2	5800	7.6	-15.0	.0	4.2	32	--	1900	1200
MAR 17...	1240	2.8	2	2790	7.6	4.0	.0	6.6	51	--	840	550
APR 11...	1215	4.9	2	3790	8.1	.0	5.5	10.6	95	.2	1200	780
MAY 07...	1315	.07	1	5600	7.9	11.0	11.5	11.6	121	--	1600	980
JUN 04...	1230	1.9	0	4700	8.3	24.5	22.5	12.7	164	--	1500	980
JUL 09...	1355	.02	0	6100	7.9	27.5	26.0	10.2	140	--	1900	1300
30...	1330	E.01	1	6300	8.2	21.5	25.5	14.8	201	--	2300	1700

DATE	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY (MG/L AS CACO3) (00410)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	BROMIDE DISSOLVED (MG/L AS BR) (71870)	IODIDE, DISSOLVED (MG/L AS I) (71865)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)
DEC 27...	250	310	870	8.7	29	690	3000	23	.6	--	--	20
MAR 17...	120	130	370	5.6	15	290	1200	9.2	.3	.1	.00	9.8
APR 11...	160	190	500	6.3	14	400	1800	12	.4	.1	.00	8.5
MAY 07...	160	290	800	8.7	21	610	2600	18	.6	--	--	10
JUN 04...	180	250	650	7.4	4.7	500	2300	15	.6	--	--	5.8
JUL 09...	180	350	1000	10	25	610	3400	25	.5	--	--	21
30...	240	420	1100	9.9	28	660	3700	20	.4	.1	.01	21

DATE	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITROGEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC DISSOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUSPENDED TOTAL (MG/L AS C) (00689)	BORON, DISSOLVED (UG/L AS B) (01020)	IRON, DISSOLVED (UG/L AS FE) (01046)
DEC 27...	4920	6.69	.66	.03	.01	.71	.72	.04	--	--	1400	130
MAR 17...	2030	2.76	15.3	.20	.57	.08	.65	--	--	--	580	200
APR 11...	2930	3.98	38.8	.03	.05	.70	.75	.02	13	--	700	40
MAY 07...	4270	5.81	.81	.01	.03	.79	.82	.02	--	--	1200	30
JUN 04...	3710	5.05	19.0	.02	.04	.87	.91	.01	--	--	1300	20
JUL 09...	5370	7.30	.29	.00	.03	1.2	1.2	.06	--	--	1800	70
30...	5930	8.06	.16	.01	.01	3.4	3.4	.02	26	.2	1700	40

06308160 PUMPKIN CREEK NEAR LOESCH, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)
APR 11...	1215	1	1	0	0	1	0	20	0	6	2	440
JUL 30...	1330	6	7	0	10	0	1	10	10	1	2	260

DATE	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
APR 11...	5	0	80	60	.1	.0	8	2	0	0	30	20
JUL 30...	3	3	420	210	.0	.0	2	3	0	0	40	50

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPER-ATURE (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)
DEC 27...	1105	.0	E.05	116	.02
MAR 17...	1240	.0	2.8	7	.05
APR 11...	1215	5.5	4.9	4	.05
MAY 07...	1315	11.5	.07	51	.01
JUN 04...	1230	22.5	1.9	32	.16
JUL 09...	1355	26.0	.02	57	.00
30...	1330	25.5	E.01	91	.00

06308400 PUMPKIN CREEK NEAR MILES CITY, MT

LOCATION(REVISED).--Lat 46°13'42", long 105°41'24", in SW¼NE¼SW¼ sec.35, T.6 N., R.48 E., Custer County, Hydrologic Unit 10090102, on right bank 12 ft (4 m) upstream from bridge on U.S. Highway 312, 7.5 mi (12.1 km) upstream from mouth, and 16 mi (26 km) southeast of Miles City.

DRAINAGE AREA.--697 mi² (1,805 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1972 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 2,490 ft (760 m), from topographic map.

REMARKS.--Water-discharge records poor. Diversions for irrigation of about 3,600 acres (14.5 km²) above station.

AVERAGE DISCHARGE.--7 years, 21.0 ft³/s (0.595 m³/s), 15,210 acre-ft/yr (18.8 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,890 ft³/s (81.8 m³/s) May 6, 1975, gage height, 12.27 ft (3.740 m); no flow at times each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 100 ft³/s (2.83 m³/s) and maximums (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 16	2245	* undetermined		a*8.37	2.551	Apr. 8	0630	217	6.15	4.33	1.320
Mar. 25	1400	655	18.5	6.57	2.003	Apr. 15	0915	353	10.0	5.11	1.558
Mar. 30	1200	196	5.55	4.19	1.277	Apr. 20	0615	180	5.10	4.08	1.244

a--ice effected.

No flow on many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.50	.20	.05	.00	.00	131	19	8.2	.70	.30	.00
2	.00	.70	.14	.00	.00	.00	74	17	5.3	.70	.10	.00
3	.00	1.0	.20	.00	.00	.00	56	15	4.0	.50	.05	.00
4	.00	.70	.40	.00	.00	.00	55	14	2.9	.50	.01	.00
5	.00	.60	.30	.00	.00	.00	54	14	3.2	.50	.01	.00
6	.00	.40	.20	.00	.00	.01	54	13	3.2	.40	.00	.00
7	.00	.40	.14	.00	.00	.02	127	14	5.6	.30	.00	.00
8	.00	.16	.20	.00	.00	.04	180	13	9.9	.20	.00	.00
9	.00	.10	.35	.00	.00	.20	109	12	4.3	.10	.00	.00
10	.10	.08	.60	.00	.00	3.0	130	11	3.4	.00	.00	.00
11	.10	.06	.50	.00	.00	50	83	10	3.2	.00	.00	.00
12	.20	.05	.65	.00	.00	200	78	11	2.6	.00	.00	.00
13	.20	.04	.45	.00	.00	650	69	11	2.2	.00	.00	.00
14	.30	.03	.80	.00	.00	500	168	11	2.0	.00	.00	.00
15	.30	.02	.70	.00	.00	520	261	11	1.9	.00	.00	.00
16	.20	.02	.65	.00	.00	700	163	8.2	1.7	.00	.00	.00
17	.80	.04	.55	.00	.00	850	129	7.8	1.6	.00	.00	.00
18	1.0	.06	.45	.00	.00	650	94	7.4	1.6	.00	.00	.00
19	.50	.04	.50	.00	.00	370	61	7.4	1.4	.00	.00	.00
20	.20	.04	.55	.00	.00	211	119	6.7	1.2	.00	.00	.00
21	.40	.02	.70	.00	.00	157	66	6.3	1.1	.00	.00	.00
22	.60	.06	.60	.00	.00	248	44	5.9	1.0	.00	.00	.00
23	.50	.10	.70	.00	.00	197	37	4.9	.80	.10	.00	.00
24	.30	.14	.80	.00	.00	255	32	4.0	.70	.05	.00	.00
25	.20	.14	.60	.00	.00	495	29	3.4	.70	.30	.00	.00
26	.20	.14	.55	.00	.00	235	27	2.6	.70	2.4	.00	.00
27	.20	.30	.45	.00	.00	104	25	2.6	.70	2.0	.00	.00
28	.10	.50	.35	.00	.00	77	24	2.4	.50	2.2	.00	.00
29	.60	.40	.30	.00	---	68	23	3.2	.50	1.2	.00	.00
30	.60	.30	.25	.00	---	152	21	11	.60	.70	.00	.00
31	.50	---	.16	.00	---	145	---	18	---	.50	.00	---
TOTAL	8.10	7.14	13.99	.05	.00	6837.27	2521	297.8	76.70	13.35	.47	.00
MEAN	.26	.24	.45	.002	.000	221	84.0	9.61	2.56	.43	.015	.000
MAX	1.0	1.0	.80	.05	.00	850	261	19	9.9	2.4	.30	.00
MIN	.00	.02	.14	.00	.00	.00	21	2.4	.50	.00	.00	.00
AC-FT	16	14	28	.10	.00	13560	5000	591	152	26	.9	.00

CAL YR 1978 TOTAL 18089.45 MEAN 49.6 MAX 1980 MIN .00 AC-FT 35880
WTR YR 1979 TOTAL 9775.87 MEAN 26.8 MAX 850 MIN .00 AC-FT 19390

06308400 PUMPKIN CREEK NEAR MILES CITY, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1976 to current year.

REVISIONS.--The concentrations of total recoverable cadmium and total recoverable lead for July 19, 1978 (1530 hours) were found in error and have been deleted.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L) (00310)
OCT										
10...	1435	.11	1	1230	8.6	27.0	11.5	10.0	101	--
24...	0730	.27	--	1880	8.4	6.0	6.0	--	--	--
DEC										
28...	1145	.38	2	3880	8.1	-20.0	.0	12.2	91	--
MAR										
12...	1430	174	1	415	7.8	9.5	.5	11.8	90	--
18...	1345	631	2	256	7.8	2.0	.5	11.0	89	--
APR										
26...	0745	28	1	3680	8.4	7.0	8.5	9.8	91	2.0
MAY										
23...	1430	5.4	0	5100	8.3	20.5	20.5	9.3	111	--
JUN										
27...	1350	.71	53	5050	8.5	17.0	22.0	7.5	93	--
JUL										
23...	1430	E.06	51	6100	8.5	29.0	24.5	7.9	103	--

DATE	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)
OCT										
10...	150	0	32	16	230	8.3	8.6	240	--	400
24...	220	0	47	26	330	9.6	9.3	320	2.5	600
DEC										
28...	500	0	68	79	760	15	13	610	--	1600
MAR										
12...	59	0	13	6.4	66	3.7	7.1	70	--	130
18...	39	0	9.6	3.7	36	2.5	4.3	63	--	62
APR										
26...	1000	610	150	160	560	7.6	14	420	--	1700
MAY										
23...	1100	630	120	200	850	11	17	490	--	2300
JUN										
27...	910	370	99	160	930	13	16	540	--	2300
JUL										
23...	900	400	82	170	1200	17	23	500	--	3100

DATE	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	BROMIDE DIS-SOLVED (MG/L AS BR) (71870)	IODIDE, DIS-SOLVED (MG/L AS I) (71865)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)
OCT									
10...	4.3	.4	.1	.00	5.8	842	1.15	.25	.01
24...	5.8	.4	--	--	6.2	1220	1.75	.94	.00
DEC									
28...	12	.5	--	--	11	2930	3.98	3.01	.48
MAR									
12...	3.6	.3	--	--	4.6	273	.37	128	.43
18...	2.5	.2	.0	.00	3.9	160	.22	273	.22
APR									
26...	16	.3	.1	.00	7.0	2860	3.89	216	.03
MAY									
23...	19	.4	--	--	4.0	3810	5.18	55.5	.02
JUN									
27...	21	.5	--	--	2.7	3850	5.24	7.38	.01
JUL									
23...	30	.5	--	--	2.6	4910	6.68	.80	.01

06308400 PUMPKIN CREEK NEAR MILES CITY, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C) (00689)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
OCT									
10...	.00	.79	.79	.10	--	14	.9	220	30
24...	.01	1.3	1.3	.05	.01	--	--	270	30
DEC									
28...	.03	.64	.67	.02	--	--	--	450	60
MAR									
12...	.09	.90	.99	.52	--	--	--	120	50
16...	.20	1.4	1.6	.33	--	14	8.5	80	60
APR									
26...	.03	.92	.95	.05	--	93	12	560	10
MAY									
23...	.09	.68	.77	.03	--	--	--	750	10
JUN									
27...	.05	.86	.91	.06	--	--	--	770	30
JUL									
23...	.04	.55	.59	.07	--	--	--	840	10

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)
APR												
26...	0745	1	1	0	0	1	0	10	10	11	1	1100

DATE	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
APR												
26...	34	0	120	70	.2	.0	11	3	1	0	50	20

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPER-ATURE (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT						
10...	1435	11.5	.11	38	.01	--
DEC						
28...	1145	.0	.38	65	.07	--
MAR						
12...	1430	.5	174	968	455	100
16...	1345	.5	631	1170	1990	97
APR						
26...	0745	8.5	28	132	10	--
MAY						
23...	1430	20.5	5.4	78	1.1	--
JUN						
27...	1350	22.0	.71	180	.35	--
JUL						
23...	1430	24.5	E.06	168	.03	--

06308500 TONGUE RIVER AT MILES CITY, MT

LOCATION.--Lat 46°20'44", long 105°48'10", in SE¼ sec.23, T.7 N., R.47 E., Custer County, Hydrologic Unit 10090102, on right bank 4 mi (6 km) south of Miles City and 8 mi (13 km) upstream from mouth.

DRAINAGE AREA.--5,379 mi² (13,932 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1938 to April 1942, April 1946 to current year. Published as "near Miles City" April 1938 to April 1942. Not equivalent to records published as "near Miles City" May 1929 to October 1932. Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WSP 1729: Drainage Area.

GAGE.--Water-stage recorder. Datum of gage is 2,375.76 ft (724.132 m) National Geodetic Vertical Datum of 1929 (levels by Army Corps of Engineers). April 1938 to April 1942, nonrecording gage at site 8 mi (13 km) upstream at different datum. April 1946 to Sept. 30, 1963, at datum 1.00 ft (0.305 m) higher.

REMARKS.--Water-discharge records good except those for winter periods, which are poor. Flow regulation by Tongue River Reservoir (see p.611,612), and many small reservoirs in Wyoming (combined capacity about 15,000 acre-ft, 18.5 hm³). Diversions for irrigation of about 90,000 acres (364 km²) above station.

AVERAGE DISCHARGE.--36 years (1938-41, 1946-79), 454 ft³/s (12.86 m³/s), 328,900 acre-ft/yr (406 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,300 ft³/s (377 m³/s) June 15, 1962, gage height, 12.33 ft (3.758 m), present datum, from rating curve extended above 8,220 ft³/s (233 m³/s) on basis of float measurement; maximum gage height, 13.27 ft (4.045 m), present datum, Mar. 19, 1960, Feb. 15, 1971 (ice jam); no flow July 9-19, Aug. 13, 14, Sept. 28, 1940.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, about 3,700 ft³/s (105 m³/s) Mar. 17; maximum gage height, 8.58 ft (2.615 m) Mar. 15 (backwater from ice jam); minimum daily discharge, 105 ft³/s (2.97 m³/s) Nov. 21, result of freezeup.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	327	183	260	280	260	260	741	459	857	427	430	327
2	320	182	320	280	270	260	653	483	1090	435	334	327
3	307	181	400	290	260	260	601	487	1150	427	324	377
4	303	181	450	290	290	250	583	479	1180	423	300	363
5	304	181	460	280	310	260	570	471	1170	419	271	355
6	307	179	450	300	290	270	556	534	1130	370	268	348
7	307	179	430	320	280	270	643	576	1130	317	274	348
8	310	178	450	340	270	280	711	574	1020	287	243	363
9	310	170	480	330	260	280	648	574	974	298	225	341
10	310	145	490	320	260	300	643	583	957	298	228	345
11	310	130	490	310	260	360	601	597	957	258	237	341
12	342	125	490	300	260	450	601	597	963	231	231	331
13	327	120	490	290	250	520	574	597	895	184	243	331
14	292	115	490	280	250	700	716	526	771	148	243	338
15	265	110	470	280	250	1000	814	521	589	166	240	331
16	246	110	400	290	250	1700	706	521	499	176	240	341
17	223	130	330	300	260	2700	629	513	458	158	225	341
18	214	150	330	310	270	2340	588	496	457	181	231	331
19	210	140	310	320	280	1530	543	479	452	166	252	274
20	204	115	330	340	270	1100	574	475	436	146	310	252
21	201	105	350	350	270	960	547	467	428	134	300	258
22	198	110	360	340	270	980	513	455	432	134	294	258
23	197	120	360	330	270	1100	492	447	418	115	271	240
24	194	130	380	320	270	1200	467	435	424	125	284	246
25	194	140	370	310	280	1100	479	439	431	200	280	243
26	190	150	350	300	280	950	475	447	425	582	314	208
27	185	160	340	290	270	912	467	459	415	570	317	189
28	187	180	320	270	260	819	463	565	419	389	310	161
29	186	200	290	270	---	840	459	620	400	348	317	137
30	187	210	280	270	---	798	451	716	415	352	317	128
31	184	---	270	260	---	772	---	777	---	519	310	---
TOTAL	7861	4509	11990	9360	7540	25521	17528	16363	21342	8983	8663	8773
MEAN	254	150	387	302	269	823	584	528	711	290	279	292
MAX	342	210	490	350	310	2700	814	777	1180	582	430	377
MIN	184	105	260	260	250	250	451	435	400	115	225	128
AC-FT	15590	8940	23780	18570	14960	50620	34770	32460	42330	17820	17180	17400

CAL YR 1978 TOTAL 366015 MEAN 1003 MAX 7700 MIN 105 AC-FT 726000
WTR YR 1979 TOTAL 148433 MEAN 407 MAX 2700 MIN 105 AC-FT 294400

06308500 TONGUE RIVER AT MILES CITY, MT--Continued
(National Stream Quality Accounting Network)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1946 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: January 1951 to current year.
WATER TEMPERATURES: April 1949 to current year.
SUSPENDED-SEDIMENT DISCHARGE: October 1977 to current year.

INSTRUMENTATION.--Temperature recorder April to July 1974, July 1977 to current year.

REMARKS.--Flow affected by ice during most of winter months.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,390 micromhos Sept. 11, 1958; minimum daily, 215 micromhos Feb. 16, 1971.
WATER TEMPERATURES: Maximum daily, 30.0°C July 28, 1954; minimum daily, 0.0°C on many days during winter periods.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 5,900 mg/L May 18, 1978; minimum daily mean, 8 mg/L Nov. 12, 13, 1977.
SEDIMENT LOADS: Maximum daily, 84,400 tons (76,600 megagrams) May 18, 1978; minimum daily, 4.0 tons (3.6 megagrams) Feb. 8, 1978.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,490 micromhos Jan. 12; minimum daily, 397 micromhos Mar. 14.
WATER TEMPERATURES: Maximum recorded, 29.0°C July 24; minimum, 0.0°C on many days during November to March.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 3,460 mg/L July 28; minimum daily mean, 9 mg/l Oct. 20.
SEDIMENT LOADS: Maximum daily, 5,650 tons (5,130 megagrams) Mar. 17; minimum daily, 5.0 tons (4.5 megagrams) Oct. 20.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)
OCT 03...	1245	308	1	910	8.5	19.0	11.5	4.3	10.7	106
NOV 14...	0745	116	0	1280	8.2	-13.0	.0	1.0	13.4	99
DEC 21...	1330	350	2	1020	8.0	-.5	.0	3.1	12.7	95
JAN 16...	1225	290	0	1070	8.1	-4.5	.0	3.4	11.6	80
FEB 20...	1230	270	2	1030	8.4	7.0	.0	5.8	11.2	84
MAR 22...	0800	980	0	720	8.2	3.0	.5	640	12.3	92
APR 25...	1445	483	1	1500	8.4	12.0	12.0	12	10.0	101
MAY 21...	1400	471	1	1100	8.3	25.0	16.5	20	8.6	100
JUN 25...	1445	431	1	860	6.2	23.0	24.0	25	8.0	103
JUL 23...	1230	125	2	695	8.6	29.0	26.0	20	7.6	102
AUG 27...	1700	317	0	790	8.4	31.5	24.0	40	7.8	101

06308500 TONGUE RIVER AT MILES CITY, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)
OCT										
03...	K10	K12	390	160	73	50	67	1.5	4.8	230
NOV										
14...	<1	K18	480	170	85	65	110	2.2	6.0	310
DEC										
21...	<1	36	430	150	78	56	67	1.4	5.2	280
JAN										
16...	K2	K13	470	180	90	60	67	1.3	6.2	290
FEB										
20...	K6	--	440	160	87	54	68	1.4	4.4	280
MAR										
22...	K68	6000	200	64	42	24	63	1.9	5.0	140
APR										
25...	K6	K14	590	290	86	92	220	3.9	6.7	300
MAY										
21...	--	160	490	250	79	70	98	1.9	6.6	240
JUN										
25...	100	127	250	81	46	33	54	1.5	3.7	170
JUL										
23...	K66	180	250	57	46	32	52	1.4	4.6	190
AUG										
27...	K40	600	300	95	56	40	51	1.3	4.7	210

DATE	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)
OCT									
03...	270	6.9	.3	7.8	614	616	.84	511	.00
NOV									
14...	380	7.0	.3	9.0	852	849	1.16	267	.05
DEC									
21...	300	5.6	.2	7.2	710	688	.97	671	.17
JAN									
16...	310	5.9	.3	9.0	739	723	1.01	579	.33
FEB									
20...	310	5.6	.3	9.8	728	707	.99	531	.45
MAR									
22...	200	3.4	.2	6.1	410	428	.56	1090	.25
APR									
25...	730	7.4	.3	4.9	1370	1330	1.86	1790	.03
MAY									
21...	430	6.3	.5	2.8	869	838	1.18	1110	.00
JUN									
25...	200	3.2	.3	6.8	450	449	.61	524	.01
JUL									
23...	170	3.4	.3	7.5	459	430	.62	152	.01
AUG									
27...	210	3.6	.4	7.7	505	500	.69	432	.02

06308500 TONGUE RIVER AT MILES CITY, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C) (00689)
OCT									
03...	.02	.84	.86	.72	.02	.01	--	4.3	.3
NOV									
14...	.01	.25	.26	.25	.01	.01	3.7	--	--
DEC									
21...	.01	.21	.22	.21	.02	.01	4.2	--	--
JAN									
16...	.02	.32	.34	.31	.02	.01	--	6.3	.4
FEB									
20...	.05	.27	.32	.28	.01	.01	3.9	--	--
MAR									
22...	.11	1.7	1.8	1.2	.56	.04	22	--	--
APR									
25...	.01	.56	.57	.46	.02	.01	--	10	5.9
MAY									
21...	.05	.49	.54	.41	.03	.01	7.6	--	--
JUN									
25...	.02	.32	.34	.33	.00	.01	4.5	--	--
JUL									
23...	.02	.66	.68	.43	.02	.04	--	2.8	.5
AUG									
27...	.10	1.1	1.2	.29	.13	.00	15	--	--

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)
OCT									
03...	1245	1	2	100	0	--	3	0	0
JAN									
16...	1225	2	1	0	70	2	3	0	0
APR									
25...	1445	1	1	0	80	0	<1	0	0
JUL									
23...	1230	1	1	0	50	0	<1	10	0

DATE	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO) (01037)	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)
OCT									
03...	0	0	8	2	330	50	--	25	20
JAN									
16...	2	<3	4	4	190	0	14	6	80
APR									
25...	0	<3	11	0	500	10	39	1	40
JUL									
23...	0	<3	100	2	720	<10	6	0	40

DATE	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG) (01077)	SILVER, DIS-SOLVED (UG/L AS AG) (01075)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
OCT									
03...	0	.0	.0	0	0	0	0	20	10
JAN									
16...	80	.0	.0	0	1	1	0	70	20
APR									
25...	20	.0	.0	1	1	1	0	40	<3
JUL									
23...	2	.1	.0	0	0	0	0	60	5

06308500 TONGUE RIVER AT MILES CITY, MT--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	873	1090	1060	1090	1060	1000	1220	1350	959	619	618	751
2	867	1100	1200	1180	1060	1030	1240	1340	926	623	761	758
3	917	1080	1100	1180	1070	1040	1290	1290	871	604	688	761
4	879	1070	1110	1200	1060	1050	1290	1260	872	603	700	760
5	849	1080	1060	1200	1090	953	1320	1260	840	602	694	761
6	875	1120	1060	1190	1080	1020	1320	1250	749	592	732	755
7	874	1120	982	1190	1060	1050	1300	1240	632	605	733	746
8	870	1110	867	1200	1060	1040	1300	1200	690	619	736	748
9	851	1060	955	1100	1050	794	1370	1180	655	634	725	761
10	867	1120	955	1110	1050	793	1380	1190	608	665	730	760
11	867	1120	935	1230	1050	533	1380	1180	609	682	733	759
12	840	1120	939	1490	1050	534	1390	1150	610	651	736	758
13	887	1160	939	---	1040	408	1390	1190	600	656	742	760
14	920	1260	948	---	1050	397	1330	1190	608	655	748	763
15	965	1250	1000	1080	1040	439	1330	1180	631	675	745	770
16	985	1250	1060	1080	1040	474	1390	1180	674	681	743	769
17	1010	1300	985	1070	1060	439	1390	1200	725	673	741	770
18	1010	1290	989	959	1060	467	1410	1190	726	672	746	772
19	1020	1340	1020	1060	1060	719	1410	1200	690	671	752	780
20	1120	1340	1020	1060	1060	862	1400	1200	691	680	725	798
21	1120	1320	1030	1050	1070	919	1390	1200	693	691	713	806
22	1110	1300	1030	1050	1070	768	1410	1210	674	705	724	824
23	1060	1250	1030	1070	1050	752	1380	1200	680	708	738	827
24	1070	1240	1040	1050	1060	795	1360	1180	661	706	741	830
25	1070	1290	983	1050	1060	782	1400	1180	664	692	745	832
26	---	1270	984	1040	1050	704	1400	1170	651	650	747	840
27	1100	1250	995	1040	1040	1040	1380	1180	660	619	750	850
28	1110	1250	1000	1040	1060	1100	1350	1140	643	641	757	855
29	1130	1240	1060	1050	---	1100	1380	1120	642	749	768	862
30	1100	1240	1060	1060	---	1140	1340	1080	640	709	763	924
31	1130	---	1060	1060	---	1190	---	1050	---	724	766	---
MEAN	978	1200	1010	1110	1060	817	1350	1200	699	660	734	790

WTR YR 1979 MEAN 966 MAX 1490 MIN 397

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1						---	6.0		---	24.5		
2						---	5.5		---	21.0		
3						---	5.0		---	22.0		
4						---	4.5		---	21.0		
5						---	5.0		---	22.0		
6						---	6.0		---	23.5		
7						---	5.5		---	25.0		
8						---	6.0		---	25.5		
9						1.0	10.0		---	24.0		
10						.5	10.0		---	26.0		
11						1.0	7.0		---	19.5		
12						3.0	4.5		---	19.0		
13						1.0	3.0		---	19.0		
14						2.0	6.5		---	19.0		
15						1.5	8.0		---	19.0		
16						1.5	10.5		---	19.0		
17						1.0	16.0		---	20.0		
18						1.0	15.0		---	22.0		
19						.5	10.5		---	21.5		
20						.5	10.0		---	22.5		
21						1.0	13.0		---	22.5		
22						.5	12.0		---	22.5		
23						2.0	10.0		---	---		
24						1.5	10.5		---	---		
25						.5	---		---	---		
26						.5	---		22.0	---		
27						1.0	---		23.0	---		
28						1.0	---		22.0	---		
29						3.5	---		22.5	---		
30						6.0	---		23.0	---		
31						7.0	---		---	---		
MEAN						1.5	8.5		22.5	22.0		

WTR YR 1979 MEAN 11.0 MAX 26.0 MIN .5

06308500 TONGUE RIVER AT MILES CITY, MT--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	16.5	15.5	16.0	6.5	4.5	5.0	.0	.0	.0	.0	.0	.0
2	16.0	13.0	14.5	7.0	5.5	6.0	.0	.0	.0	.0	.0	.0
3	13.0	11.0	12.0	7.5	6.0	6.5	.0	.0	.0	.0	.0	.0
4	13.0	11.5	12.0	7.5	6.5	7.0	.0	.0	.0	.0	.0	.0
5	11.5	10.0	11.0	6.5	5.5	5.5	.0	.0	.0	.0	.0	.0
6	11.5	9.5	10.5	5.5	4.0	4.5	.0	.0	.0	.0	.0	.0
7	12.0	10.0	11.0	6.5	4.0	5.0	.0	.0	.0	.0	.0	.0
8	12.5	11.0	11.5	7.5	6.0	6.5	.0	.0	.0	.0	.0	.0
9	13.0	11.0	12.0	7.5	4.0	6.0	.0	.0	.0	.0	.0	.0
10	13.0	11.5	12.5	---	.5	---	.0	.0	.0	.0	.0	.0
11	13.0	12.0	12.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
12	12.0	11.0	11.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
13	10.5	9.0	10.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
14	10.0	8.0	9.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
15	10.5	8.5	9.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
16	11.0	9.0	10.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
17	11.0	10.5	10.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
18	11.0	9.5	10.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
19	11.5	9.5	10.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
20	11.5	10.0	10.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
21	11.0	9.5	10.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
22	9.5	8.0	9.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
23	9.0	7.5	8.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
24	8.5	8.0	8.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
25	8.5	7.5	8.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
26	8.0	6.5	7.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
27	7.5	6.0	6.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
28	7.5	6.0	7.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
29	7.5	6.5	7.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
30	7.5	6.5	7.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
31	7.0	5.0	5.5	---	---	---	.0	.0	.0	.0	.0	.0
MONTH	16.5	5.0	10.0	7.5	.0	2.0	.0	.0	.0	.0	.0	.0

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	.0	.0	.0	.0	.0	.0	---	---	---	14.5	14.0	14.5
2	.0	.0	.0	.0	.0	.0	---	---	---	14.5	14.0	14.5
3	.0	.0	.0	.0	.0	.0	---	---	---	15.0	14.5	14.5
4	.0	.0	.0	.0	.0	.0	---	---	---	15.0	14.5	14.5
5	.0	.0	.0	.0	.0	.0	---	---	---	15.5	14.5	15.0
6	.0	.0	.0	.0	.0	.0	---	---	---	16.0	15.5	15.5
7	.0	.0	.0	.0	.0	.0	---	---	---	16.0	15.0	15.5
8	.0	.0	.0	.0	.0	.0	---	---	---	15.0	14.5	14.5
9	.0	.0	.0	---	---	---	---	---	---	14.5	14.0	14.0
10	.0	.0	.0	---	---	---	---	---	---	14.0	13.5	13.5
11	.0	.0	.0	---	---	---	---	---	---	13.5	13.5	13.5
12	.0	.0	.0	---	---	---	---	---	---	14.0	13.5	13.5
13	.0	.0	.0	---	---	---	---	---	---	15.0	14.0	14.5
14	.0	.0	.0	---	---	---	---	---	---	16.0	15.0	15.5
15	.0	.0	.0	---	---	---	---	---	---	17.0	16.0	16.0
16	.0	.0	.0	---	---	---	---	---	---	18.0	17.0	17.5
17	.0	.0	.0	---	---	---	---	---	---	18.5	18.5	18.5
18	.0	.0	.0	---	---	---	---	---	---	18.5	18.5	18.5
19	.0	.0	.0	---	---	---	---	---	---	19.0	18.5	19.0
20	.0	.0	.0	---	---	---	---	---	---	18.5	18.0	18.5
21	.0	.0	.0	---	---	---	---	---	---	19.0	18.5	18.5
22	.0	.0	.0	---	---	---	---	---	---	19.0	18.5	19.0
23	.0	.0	.0	---	---	---	---	---	---	19.0	19.0	19.0
24	.0	.0	.0	---	---	---	---	---	---	20.0	19.0	19.5
25	.0	.0	.0	---	---	---	12.5	---	---	20.5	19.5	20.0
26	.0	.0	.0	---	---	---	12.5	12.5	12.5	21.0	20.5	20.5
27	.0	.0	.0	---	---	---	13.0	12.5	12.5	21.5	21.0	21.0
28	.0	.0	.0	---	---	---	13.5	13.5	13.5	21.5	21.0	21.5
29	---	---	---	---	---	---	13.5	12.5	13.0	21.0	19.5	20.0
30	---	---	---	---	---	---	14.0	13.0	13.5	19.5	18.5	18.5
31	---	---	---	---	---	---	---	---	---	18.5	18.0	18.5
MONTH	.0	.0	.0	.0	.0	.0	14.0	12.5	13.0	21.5	13.5	17.0

06308500 TONGUE RIVER AT MILES CITY, MT--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	18.5	17.5	17.5	---	---	---	26.5	22.5	24.5	23.5	18.0	21.0
2	18.5	17.5	18.0	---	---	---	27.0	21.0	24.0	24.0	19.0	21.5
3	20.0	18.5	19.0	---	---	---	27.5	21.5	24.5	25.5	20.0	23.0
4	23.5	20.5	22.0	---	---	---	26.0	22.5	24.0	24.0	20.0	22.0
5	23.0	22.0	22.5	---	---	---	28.0	22.0	25.0	24.0	19.5	21.5
6	22.5	21.5	22.0	---	---	---	28.0	24.5	26.0	23.5	18.5	21.0
7	21.5	19.0	20.0	---	---	---	27.0	23.5	25.0	24.5	19.5	22.0
8	19.5	17.5	18.5	---	---	---	25.5	22.0	23.5	25.5	20.5	23.0
9	20.0	17.0	18.5	---	---	---	25.5	21.0	23.0	25.0	21.5	23.5
10	22.0	17.5	19.5	---	---	---	26.0	19.5	23.0	22.0	17.5	19.5
11	24.5	20.0	22.0	---	---	---	26.5	20.0	23.5	20.0	15.0	17.5
12	26.0	22.0	24.0	---	---	---	25.0	21.5	23.0	17.5	15.0	16.5
13	26.0	23.0	24.0	---	---	---	22.0	19.5	21.0	17.5	13.5	15.5
14	23.5	20.5	22.0	---	---	---	19.5	16.5	17.5	18.0	12.5	15.5
15	23.5	19.0	21.5	---	---	---	23.5	15.5	19.5	19.5	13.5	16.5
16	23.5	18.5	21.0	---	---	---	25.0	20.0	22.5	21.0	14.5	18.0
17	21.5	18.0	19.5	---	---	---	26.0	20.0	23.0	21.0	16.5	19.0
18	19.5	16.5	17.5	---	---	---	25.0	20.5	23.0	20.0	15.5	18.0
19	18.0	16.5	17.5	---	---	---	24.5	20.5	22.5	21.0	16.0	18.5
20	22.5	15.5	18.5	---	---	---	24.0	20.5	22.0	20.5	15.5	18.0
21	23.5	17.5	20.5	---	---	---	23.0	20.5	21.5	20.5	15.0	18.0
22	23.5	19.5	21.5	---	---	---	23.0	19.5	21.0	20.5	16.0	18.0
23	25.5	19.0	22.0	27.5	---	---	25.0	19.0	22.0	20.0	15.0	17.5
24	27.0	20.5	23.5	29.0	22.5	25.5	25.0	19.5	22.5	20.0	14.5	17.0
25	---	21.5	---	25.0	22.0	23.5	22.5	20.0	21.0	20.0	14.5	17.5
26	---	---	---	24.0	20.5	22.0	23.5	19.0	21.0	20.0	15.5	17.5
27	---	---	---	25.5	21.0	23.0	24.5	19.0	21.5	18.5	15.0	16.5
28	---	---	---	27.0	21.5	24.0	24.0	20.5	22.0	18.5	13.0	16.0
29	---	---	---	25.5	22.5	24.0	25.0	19.0	22.5	18.5	13.5	16.0
30	---	---	---	26.0	21.5	23.5	26.0	21.0	23.5	17.5	14.0	15.5
31	---	---	---	27.0	21.5	24.5	24.0	20.5	22.0	---	---	---
MONTH	27.0	15.5	20.5	29.0	20.5	24.0	28.0	15.5	22.5	25.5	12.5	18.5
YEAR	29.0	.0	10.0									

06308500 TONGUE RIVER AT MILES CITY, MT--Continued

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	38	34	42	21	30	21	61	46	25	18	54	38
2	30	26	25	12	36	31	88	67	25	18	56	59
3	28	23	19	9.3	87	94	97	76	20	15	53	37
4	48	39	23	11	74	90	90	70	20	16	76	51
5	45	37	17	8.3	80	99	87	66	30	25	32	22
6	44	36	16	7.7	85	103	92	75	31	24	36	26
7	42	35	20	9.7	80	93	107	92	22	17	51	37
8	44	37	36	17	75	91	110	101	25	18	79	60
9	28	23	50	23	85	110	95	85	15	11	324	245
10	43	36	19	7.4	82	108	77	67	30	21	330	267
11	34	28	19	6.7	82	108	127	106	91	64	450	437
12	49	45	20	6.8	77	102	64	52	91	64	475	577
13	47	41	63	20	80	106	215	168	72	49	722	1010
14	36	28	74	23	84	111	170	129	61	41	692	1310
15	29	22	91	27	56	71	49	37	69	47	673	1820
16	20	13	119	35	62	67	19	15	50	34	520	2390
17	30	18	92	32	79	70	43	35	31	22	775	5650
18	26	15	66	27	61	54	31	26	39	28	620	3920
19	20	11	55	21	53	44	59	51	31	23	250	1030
20	9	5.0	60	19	46	41	32	29	37	27	194	576
21	20	11	58	16	50	47	55	52	50	36	282	731
22	24	13	58	17	57	55	19	17	30	22	864	2290
23	18	9.6	47	15	42	41	14	12	47	34	748	2220
24	57	30	27	9.5	40	41	26	22	43	31	770	2490
25	37	19	46	17	32	32	17	14	65	49	1440	4280
26	41	21	45	18	47	44	19	15	40	30	785	2010
27	43	21	36	16	43	39	17	13	26	19	290	714
28	44	22	41	20	35	30	25	18	51	36	280	619
29	35	18	41	22	27	21	31	23	---	---	575	1300
30	33	17	46	26	36	27	22	16	---	---	485	1040
31	13	6.5	---	---	42	31	28	20	---	---	263	548
TOTAL	---	740.1	---	520.4	---	2022	---	1615	---	839	---	37784
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	229	458	127	157	625	1450	103	119	610	708	136	120
2	171	301	139	181	1210	3560	118	139	1020	920	148	131
3	178	289	105	138	915	2840	114	131	1100	962	116	118
4	119	187	112	145	908	2890	165	188	385	312	123	121
5	102	157	112	142	822	2600	174	197	277	203	106	102
6	188	282	114	164	578	1760	94	94	225	163	103	97
7	538	934	142	219	491	1500	85	73	218	161	95	89
8	346	664	118	183	374	1030	72	56	176	115	96	94
9	185	324	100	155	298	784	71	56	152	92	98	90
10	206	358	93	146	252	651	72	57	144	89	115	107
11	159	258	86	139	270	698	64	45	143	92	89	82
12	158	256	92	148	269	699	55	34	151	94	74	66
13	262	406	112	181	212	512	53	26	134	88	60	54
14	762	1470	121	172	165	343	47	19	115	75	73	67
15	470	1030	120	169	101	161	44	20	118	76	73	65
16	212	404	118	166	89	120	60	29	105	68	54	50
17	208	353	121	168	87	108	55	23	96	58	51	47
18	185	294	80	107	75	93	70	34	117	73	44	39
19	141	207	96	124	63	77	75	34	117	80	43	32
20	196	304	121	155	64	75	42	17	187	157	41	28
21	142	210	123	155	71	82	37	13	178	144	35	24
22	91	126	124	152	85	99	49	18	147	117	35	24
23	82	109	127	153	56	63	59	18	132	97	25	16
24	101	133	112	132	66	76	81	27	145	111	32	21
25	77	100	98	116	70	81	100	56	130	98	27	18
26	90	115	124	150	73	84	437	946	137	116	34	19
27	98	124	110	136	65	73	3080	4740	137	117	28	14
28	107	134	300	458	84	95	3460	3630	149	125	16	7.0
29	94	116	351	588	80	86	1350	1270	130	111	29	11
30	85	104	528	1020	74	83	470	447	131	112	16	5.5
31	---	---	537	1130	---	---	980	1370	118	99	---	---
TOTAL	---	10207	---	7349	---	22773	---	13926	---	5833	---	1758.5

TOTAL LOAD FOR YEAR: 105367.0 TONS.

06308500 TONGUE RIVER AT MILES CITY, MT--Continued

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPERATURE (DEG C) (00010)	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT						
03...	1245	11.5	308	24	20	94
NOV						
14...	0745	.0	116	15	4.7	81
DEC						
21...	1330	.0	350	82	77	98
APR						
25...	1445	12.0	483	83	108	92
MAY						
21...	1400	18.5	471	109	139	97
JUN						
25...	1445	24.0	431	65	76	93
JUL						
23...	1230	26.0	123	45	15	94
AUG						
27...	1700	24.0	317	111	95	98

DATE	TIME	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	BAROMETRIC PRESSURE (MM OF HG) (00025)	WEATHER (WMO CODE NUMBER) (00041)
AUG									
27...	0700	779	8.4	13.0	18.5	7.6	88	695	0
27...	0800	--	--	--	18.5	7.9	92	--	0
27...	0900	765	--	20.5	19.0	8.0	94	696	0
27...	1000	--	--	--	19.5	8.1	96	--	--
27...	1100	785	8.4	29.5	20.5	8.1	98	696	0
27...	1200	--	--	29.0	21.5	8.1	100	--	0
27...	1300	795	8.4	30.0	22.0	8.1	101	696	0
27...	1400	--	--	--	22.5	8.1	102	--	0
27...	1500	--	--	--	23.5	8.0	102	--	--
27...	1600	810	8.5	32.0	24.0	7.9	102	695	0
27...	1700	798	8.4	31.5	24.0	7.8	101	695	0
27...	1800	800	8.4	28.5	24.5	7.5	96	695	0
27...	1900	--	--	--	24.0	7.3	94	--	--
27...	2000	790	8.4	21.5	24.0	7.1	92	695	0
27...	2100	--	--	--	23.5	7.0	90	--	--
27...	2200	--	--	--	23.0	7.0	89	--	--
27...	2300	--	--	--	22.5	7.0	88	--	--
27...	2400	--	--	--	22.0	7.1	86	--	--
28...	0100	--	--	--	22.0	7.1	86	--	--
28...	0200	--	--	--	21.5	7.1	88	--	--
28...	0300	--	--	--	21.5	7.2	89	--	--
28...	0400	--	--	--	21.0	7.2	88	--	--
28...	0500	--	--	--	20.5	7.3	88	--	--
28...	0600	705	8.4	15.5	20.5	7.3	88	695	1
28...	0700	705	8.4	14.5	20.0	7.3	87	695	1

06308500 TONGUE RIVER AT MILES CITY, MT--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

PHYTOPLANKTON

DATE	NOV 14,78	APR 25,79	MAY 21,79	JUN 25,79	AUG 29,79
TIME	0745	1445	1400	1445	1700
TOTAL CELLS/ML	310	6600	13000	1200	21000
DIVERSITY: DIVISION	1.6	0.6	0.7	1.1	1.5
.CLASS	1.6	0.6	0.7	1.1	1.5
..ORDER	1.9	1.6	1.0	1.6	2.0
...FAMILY	1.9	1.8	1.2	2.5	2.3
....GENUS	1.9	0.0	1.3	2.8	2.7

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)										
.CHLOROPHYCEAE										
..CHLOROCOCCALES										
...CHARACIACEAE										
....SCHROEDERIA	--	-	--	-	--	-	39	3	340	2
...OOCYSTACEAE										
....ANKISTRODESMUS	44	14	160	3	810	6	210#	17	1000	5
....KIRCHNERIELLA	--	-	59	1	--	-	--	-	110	1
....OOCYSTIS	--	-	--	-	--	-	--	-	900	4
....SELENASTRUM	--	-	--	-	--	-	13	1	--	-
....TETRAEDRON	--	-	--	-	--	-	--	-	110	1
...SCENEDESMACEAE										
....ACTINASTRUM	--	-	--	-	--	-	--	-	450	2
....SCENEDESMUS	--	-	--	-	460	4	230#	19	1800	6
..TETRASPORALES										
...PALMELLACEAE										
....GLOEOCYSTIS	--	-	--	-	--	-	--	-	220	1
..VOLVOCALES										
...CHLAMYDOMONADACEAE	--	-	59	1	--	-	--	-	--	-
....CHLAMYDOMONAS	--	-	--	-	120	1	13	1	--	-
CHRYSOPHYTA										
.BACILLARIOPHYCEAE										
..CENTRALES										
...COSCINODISCACEAE										
....CYCLOTELLA	22	7	2800#	42	9900#	76	340#	28	6600#	31
....MELOSIRA	--	-	--	-	350	3	65	5	--	-
..PENNALES										
...FRAGILARIACEAE										
....ASTERIONELLA	--	-	240	3	--	-	--	-	--	-
....FRAGILARIA	--	-	--	-	120	1	220#	18	--	-
....SYNEDRA	--	-	180	3	--	-	--	-	--	-
...NAVICULACEAE										
....NAVICULA	--	-	--	-	--	-	13	1	110	1
...NITZSCHIACEAE										
....NITZSCHIA	22	7	2700#	40	460	4	39	3	670	3
CRYPTOPHYTA (CRYPTOMONADS)										
.CRYPTOPHYCEAE										
..CRYPTOMONADALES										
...CRYPTOCHRYSIDACEAE										
....CHROOMONAS	--	-	--	-	120	1	--	-	--	-
...CRYPTOMONADACEAE										
....CRYPTOMONAS	--	-	--	-	350	3	13	1	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)										
.CYANOPHYCEAE										
..CHROOCOCCALES										
...CHROOCOCCACEAE										
....AGMENELLUM	--	-	--	-	--	-	--	-	7200#	34
....ANACYSTIS	--	-	--	-	--	-	13	1	780	4
..HORMOGONALES										
...NOSTOCACEAE										
....APHANIZOMENON	--	-	--	-	--	-	--	-	900	4
...OSCILLATORIACEAE										
....OSCILLATORIA	160#	50	--	-	--	-	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)										
.EUGLENOPHYCEAE										
..EUGLENALES										
...EUGLENACEAE										
....TRACHELOMONAS	66#	21	530	8	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

06308500 TONGUE RIVER AT MILES CITY, MT--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

PERIPHYTON

DATE	TIME	LENGTH OF EXPOSURE (DAYS) (00022)	PERIPHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M (00573)	PERIPHYTON BIOMASS ASH WEIGHT G/SQ M (00572)	CHLOR-A PERIPHYTON CHROMOGRAPHIC FLUOROM (MG/M2) (70957)	CHLOR-B PERIPHYTON CHROMOGRAPHIC FLUOROM (MG/M2) (70958)	BIOMASS CHLOROPHYLL RATIO PERIPHYTON (UNITS) (70950)
MAY							
21...	1400	26	.160	.160	.000	.000	.00
JUL							
23...	1230	28	40.1	37.2	3.17	.670	915

06309000 YELLOWSTONE RIVER AT MILES CITY, MT

LOCATION(REVISED).--Lat 46°25'18", long 105°51'38", in SW¼NW¼ sec.28, T.8 N., R.47 E., Custer County, Hydrologic Unit 10100001, on left bank, at upstream side of bridge on State Highway 22 at Miles City, 0.8 mi (1.3 km) downstream from Tongue River, and at mile 180.8 (290.9 km).

DRAINAGE AREA.--48,253 mi² (124,975 km²).

PERIOD OF RECORD.--September 1922 to September 1923, August, 1928 to current year. Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,333.3 ft (711.19 m) National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to May 6, 1929, nonrecording gages at pumping plant 1.2 mi (1.9 km) downstream at different datums. May 6, 1929, to Sept. 30, 1931, nonrecording gage, and Oct. 1, 1931, to Nov. 10, 1937, water-stage recorder 300 ft (91 m) upstream from present site at same datum. Nov. 11, 1937, to Sept. 30, 1946, water-stage recorder at pumping plant 1.2 mi (1.9 km) downstream at different datum. Mar. 15, 1979, gage was destroyed. Sept. 22, 1979, gage reestablished 300 ft (91 m) downstream at same datum.

REMARKS.--Records fair except those for winter period, which are poor. Some regulation by reservoirs on tributary streams. Diversions for irrigation of about 1,100,000 acres (4,450 km²) above station (does not include flood irrigation). Several observations of water temperature were made during the year and are available in files of Helena district office.

AVERAGE DISCHARGE.--52 years (1922-23, 1928-79), 11,605 ft³/s (328.7 m³/s), 8,408,000 acre-ft/yr (10.4 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 102,000 ft³/s (2,889 m³/s) May 22, 1978, gage height, 16.50 ft (5.029 m); maximum gage height, 21.7 ft (6.61 m) Mar. 20, 1944 (ice jam); minimum discharge, 996 ft³/s (28.2 m³/s) Dec. 14, 1932.

EXTREMES FOR CURRENT YEAR.--Maximum discharge observed, 53,900 ft³/s (1,526 m³/s) Mar. 15, gage height, 16.62 ft (5.066 m); maximum gage height, 20.78 ft (6.334 m) Mar. 15 (backwater from ice jam); minimum daily discharge, 4,200 ft³/s (119 m³/s) Nov. 15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12200	9960	9200	5200	5400	8200	12500	11800	29200	27500	11000	8200
2	12100	9940	9200	5300	5400	8000	12200	12200	24900	26900	10600	7900
3	11800	10500	9000	5400	5600	7800	11700	12200	21800	26200	10100	7800
4	11600	10500	8400	5600	5800	7800	11300	12900	21500	24600	9600	7700
5	11500	10600	8200	5800	6000	7600	11000	12600	19800	22900	9400	7600
6	11400	10600	8000	6000	6200	8400	10800	12700	16800	22300	9000	7200
7	11200	10500	7600	6200	6400	9400	11100	13200	16700	21200	8600	7000
8	11300	10500	7400	6400	6600	10400	11200	13700	24200	19400	8160	6800
9	11100	10800	7600	6400	6600	12000	11900	15000	26900	18100	7430	6600
10	10900	11100	7600	6000	6400	13000	12200	14100	25200	17300	7510	6400
11	10700	11200	7800	5900	6400	16000	13900	12600	22800	16600	7310	6510
12	10700	8000	7900	5800	6400	16000	14100	11800	21000	15500	6690	6450
13	10600	5200	8000	5600	6600	18000	14100	11000	20300	14300	7250	6360
14	10700	4500	8300	5500	6600	23000	14100	10100	21600	14100	7540	6600
15	10600	4200	8600	5600	6600	27000	12600	10100	24800	13700	7380	6330
16	10600	5600	8800	5800	6600	34000	12000	10800	33800	13400	8900	6690
17	10500	9000	8000	6000	6600	33000	11900	11000	34500	12800	10000	6690
18	10500	9700	7400	6200	6800	32000	11700	11200	29900	12300	9800	6600
19	10600	9000	7600	6400	7000	30000	11400	12900	28700	11600	9000	6450
20	10500	7000	7800	6800	7200	31000	12400	14700	28200	11000	8600	6210
21	10500	6400	8000	7000	7600	25400	13000	14700	31200	10800	8200	6100
22	10300	6600	8200	6800	7800	21300	13100	14900	31100	10600	7930	5920
23	10300	7000	8400	6600	7800	21800	12400	16200	30100	10100	7380	5610
24	10300	7200	8600	6500	7600	18000	12000	17800	28100	10400	8290	5840
25	10200	9000	8600	6400	7800	16200	12000	20200	26300	11200	7700	5780
26	10100	9800	8600	6200	8200	16000	11900	23500	27800	11500	7800	5720
27	10100	9400	8400	6000	8400	17200	12200	24600	29200	11200	8000	5610
28	10000	9400	8200	5800	8400	15500	12200	26200	29200	10900	8400	5580
29	8450	9400	7400	5600	---	14000	12000	30200	28700	11200	8800	5560
30	8630	9400	6400	5500	---	13100	11700	34800	28200	11900	8800	5470
31	10000	---	5800	5400	---	12600	---	34700	---	12000	8600	---
TOTAL	330180	262000	249000	185700	190800	547900	366600	504400	782500	483500	263770	195480
MEAN	10650	8733	8032	5990	6814	17670	12220	16270	26080	15600	8509	6516
MAX	12200	11200	9200	7000	8400	34000	14100	34800	34500	27500	11000	8200
MIN	8450	4200	5800	5200	5400	7800	10800	10100	16700	10100	6690	5470
AC-FT	654900	519700	493900	368300	378500	1087000	727200	1000000	1552000	959000	523200	387700

CAL YR 1978 TOTAL 6039010 MEAN 16550 MAX 81900 MIN 4200 AC-FT 11980000
WTR YR 1979 TOTAL 4361830 MEAN 11950 MAX 34800 MIN 4200 AC-FT 8652000

06309000 YELLOWSTONE RIVER AT MILES CITY, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: May 1974 to September 1975, July 1977 to current year.

INSTRUMENTATION.--Temperature recorder May 1974 to September 1975, July 1977 to current year.

REMARKS.--Thermograph probe located in flow, out from left bank. Flow from Tongue River is near right bank. Temperature record is equivalent to Yellowstone River near Miles City (station 06296120) located above confluence of the Tongue River. All equipment lost during Mar. 15 ice flow. New thermograph installed July 5.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum recorded, 27.5°C July 19, Aug. 6, 1979; minimum, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum recorded, 27.5°C July 19, Aug. 6; minimum, 0.0°C on many days during December to March.

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1							---	---	---	.0	.0	.0
2							---	---	---	.0	.0	.0
3							---	---	---	.0	.0	.0
4							---	---	---	.0	.0	.0
5							---	---	---	.0	.0	.0
6							---	---	---	.0	.0	.0
7							---	---	---	.0	.0	.0
8							---	---	---	.0	.0	.0
9							---	---	---	.0	.0	.0
10							---	---	---	.0	.0	.0
11							---	---	---	.0	.0	.0
12							---	---	---	.0	.0	.0
13							---	---	---	.0	.0	.0
14							---	---	---	.0	.0	.0
15							---	---	---	.0	.0	.0
16							---	---	---	.0	.0	.0
17							---	---	---	.0	.0	.0
18							---	---	---	.0	.0	.0
19							---	---	---	.0	.0	.0
20							---	---	---	.0	.0	.0
21							---	---	---	.0	.0	.0
22							---	---	---	.0	.0	.0
23							---	---	---	.0	.0	.0
24							---	---	---	.0	.0	.0
25							---	---	---	.0	.0	.0
26							---	---	---	.0	.0	.0
27							---	---	---	.0	.0	.0
28							---	---	---	.0	.0	.0
29							---	---	---	.0	.0	.0
30							.0	.0	.0	.0	.0	.0
31							.0	.0	.0	.0	.0	.0
MONTH							.0	.0	.0	.0	.0	.0

06309000 YELLOWSTONE RIVER AT MILES CITY, MT--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	.0	.0	.0	.0	.0	.0						
2	.0	.0	.0	.0	.0	.0						
3	.0	.0	.0	.0	.0	.0						
4	.0	.0	.0	.0	.0	.0						
5	.0	.0	.0	---	---	---						
6	.0	.0	.0	---	---	---						
7	.0	.0	.0	---	---	---						
8	.0	.0	.0	---	---	---						
9	.0	.0	.0	---	---	---						
10	.0	.0	.0	---	---	---						
11	.0	.0	.0	---	---	---						
12	.0	.0	.0	---	---	---						
13	.0	.0	.0	---	---	---						
14	.0	.0	.0	---	---	---						
15	.0	.0	.0	---	---	---						
16	.0	.0	.0	---	---	---						
17	.0	.0	.0	---	---	---						
18	.0	.0	.0	---	---	---						
19	.0	.0	.0	---	---	---						
20	.0	.0	.0	---	---	---						
21	.0	.0	.0	---	---	---						
22	.0	.0	.0	---	---	---						
23	.0	.0	.0	---	---	---						
24	.0	.0	.0	---	---	---						
25	.0	.0	.0	---	---	---						
26	.0	.0	.0	---	---	---						
27	.0	.0	.0	---	---	---						
28	.0	.0	.0	---	---	---						
29	---	---	---	---	---	---						
30	---	---	---	---	---	---						
31	---	---	---	---	---	---						
MONTH	.0	.0	.0	.0	.0	.0						

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1				---	---	---	26.0	---	---	22.5	19.5	21.0
2				---	---	---	26.5	23.0	24.5	23.0	20.0	21.5
3				---	---	---	26.5	22.5	24.5	24.0	20.5	22.0
4				---	---	---	26.0	22.5	24.0	23.0	20.5	21.5
5				23.5	---	---	27.0	23.5	25.0	23.5	20.5	21.5
6				24.5	21.0	23.0	27.5	24.5	26.0	23.0	19.5	21.0
7				25.0	23.0	24.0	26.0	24.5	25.0	23.5	20.0	21.5
8				24.5	23.0	23.5	25.5	23.5	24.0	24.0	20.5	22.0
9				25.0	23.0	24.0	24.0	22.0	23.0	24.0	21.5	22.5
10				25.5	23.0	24.0	24.5	21.0	22.5	21.5	18.5	20.5
11				25.0	23.0	24.0	24.5	21.0	22.5	21.0	17.5	19.0
12				24.5	23.0	24.0	24.0	21.5	22.5	16.5	16.5	17.5
13				25.0	23.0	24.0	22.0	19.5	21.0	18.5	15.5	16.5
14				24.5	22.5	23.5	19.5	17.5	18.5	---	---	---
15				24.0	21.5	23.0	21.5	17.0	19.5	---	---	---
16				24.5	21.5	23.0	23.0	20.0	21.0	---	---	---
17				25.0	22.0	23.5	23.5	20.0	21.5	---	---	---
18				26.5	22.5	24.5	23.5	20.5	22.0	---	---	---
19				27.5	23.5	25.5	23.5	21.0	22.0	---	---	---
20				---	---	---	24.0	21.0	22.5	---	---	---
21				---	---	---	23.5	21.5	22.0	---	---	---
22				---	---	---	23.5	21.0	22.0	20.0	---	---
23				---	---	---	23.5	20.0	21.5	20.5	16.5	18.0
24				---	---	---	23.5	20.0	21.5	20.5	16.5	18.5
25				---	---	---	21.5	20.0	21.0	20.0	16.5	18.0
26				---	---	---	22.5	19.0	21.0	20.0	17.0	18.0
27				---	---	---	22.5	19.5	21.0	18.5	16.5	17.5
28				---	---	---	23.0	20.0	21.5	19.5	16.0	17.5
29				---	---	---	23.5	20.5	22.0	19.5	16.0	17.5
30				---	---	---	24.0	21.0	22.5	18.5	15.5	17.0
31				---	---	---	22.5	20.0	21.5	---	---	---
MONTH				27.5	21.0	24.0	27.5	17.0	22.5	24.0	15.5	19.5
YEAR	27.5	.0	11.0									

06309075 SUNDAY CREEK NEAR MILES CITY, MT

LOCATION.--Lat 46°28'23", long 105°50'34", in NW¼SW¼SW¼ sec.3, T.8 N., R.47 E., Custer County, Hydrologic Unit 10100001, on left bank 15 ft (5 m) downstream from bridge on FAS Route 489, 5.5 mi (8.8 km) downstream from confluence of North and South Sunday Creeks, 9.5 mi (15.3 km) upstream from mouth, and 5.5 mi (8.8 km) north of Miles City.

DRAINAGE AREA.--714 mi² (1,849 km²).

PERIOD OF RECORD.--October 1974 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 2,380 ft (725 m), from topographic map.

REMARKS.--Records poor Oct. 1 to Apr. 23 and fair Apr. 24 to Sept. 30. Diversions for irrigation of about 400 acres (1.62 km²) above station. Several observations of water temperature were made during the year and are available in files of Helena district office.

AVERAGE DISCHARGE.--5 years, 52.7 ft³/s (1.492 m³/s), 38,180 acre-ft/yr (47.1 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,760 ft³/s (191 m³/s) May 7, 1975, gage height, 13.30 ft (4.054 m); no flow at times each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, undetermined, but was the only peak above base of 500 ft³/s (14.2 m³/s); maximum gage height, 8.90 ft (2.713 m) Mar. 14 (backwater from ice); no flow on many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.7	.15	.30	.00	.00	.00	130	13	13	.00	.15	.00
2	5.6	.15	.20	.00	.00	.00	140	11	9.3	.00	.07	.00
3	4.3	.15	.10	.00	.00	.00	150	9.9	7.0	.00	.00	.00
4	2.4	.15	.20	.00	.00	.00	160	7.6	4.7	.00	.00	.00
5	2.1	.07	.20	.00	.00	.00	170	7.0	3.1	.00	.00	.00
6	1.6	.07	.10	.00	.00	2.6	150	7.6	2.1	.00	.00	.00
7	2.1	.15	.20	.00	.00	64	140	7.0	2.4	.39	.00	.00
8	2.1	.15	.10	.00	.00	16	150	17	2.4	5.6	.00	.00
9	1.4	.05	.05	.00	.00	44	140	23	12	2.4	.00	.00
10	1.4	.05	.10	.00	.00	120	130	14	11	1.2	.00	.00
11	1.2	.05	.10	.00	.00	320	290	9.9	6.5	.75	.00	.00
12	1.2	.20	.20	.00	.00	644	210	9.9	3.1	.62	.00	.00
13	1.1	.80	.30	.00	.00	1300	155	7.6	1.2	.62	.00	.00
14	.89	1.8	.30	.00	.00	2580	185	7.0	.50	.75	.00	.00
15	.75	2.0	.30	.00	.00	1540	219	6.5	.39	.30	.00	.00
16	.62	1.8	.20	.00	.00	1700	206	5.2	.18	.18	.00	.00
17	.50	1.4	.10	.00	.00	1810	177	4.3	.18	.07	.00	.00
18	.50	1.2	.05	.00	.00	1700	157	2.7	.15	.00	.00	.00
19	.50	.80	.00	.00	.00	1400	155	2.4	.11	.00	.00	.00
20	.50	.50	.00	.00	.00	1100	135	2.4	.15	.00	.00	.00
21	.39	.40	.00	.00	.00	940	94	2.1	.15	.00	.00	.00
22	.39	.40	.00	.00	.00	760	70	1.2	.11	.00	1.0	.00
23	.30	.40	.00	.00	.00	620	55	1.2	.15	.00	.00	.00
24	.22	.40	.00	.00	.00	500	37	1.2	.11	.00	.00	.00
25	.22	.60	.00	.00	.00	400	34	1.9	.04	31	.00	.00
26	.15	.60	.00	.00	.00	310	26	.62	.07	19	.00	.00
27	.15	.80	.00	.00	.00	250	24	.75	.07	4.3	.00	.00
28	.15	1.0	.00	.00	.00	200	20	.69	.07	1.6	.00	.00
29	.15	1.6	.00	.00	---	280	18	1.6	.00	.62	.00	.00
30	.15	.40	.00	.00	---	140	15	2.7	.00	.62	.00	.00
31	.04	---	.00	.00	---	160	---	13	---	.39	.00	---
TOTAL	41.77	18.29	3.10	.00	.00	18900.60	3740	202.10	80.23	70.41	1.22	.00
MEAN	1.35	.61	.10	.000	.000	610	125	6.52	2.67	2.27	.039	.000
MAX	8.7	2.0	.30	.00	.00	2580	290	23	13	31	1.0	.00
MIN	.04	.05	.00	.00	.00	.00	15	.62	.00	.00	.00	.00
AC-FT	83	36	6.1	.00	.00	37490	7420	401	159	140	2.4	.00

CAL YR 1978 TOTAL 36819.76 MEAN 101 MAX 3000 MIN .00 AC-FT 73030
WTR YR 1979 TOTAL 23057.76 MEAN 63.2 MAX 2580 MIN .00 AC-FT 45740

06309079 MUSTER CREEK NEAR KINSEY, MT

LOCATION.--Lat 46°37'05", long 105°45'08", in NW¼SW¼SE¼ sec.13, T.10 N., R.47 E., Custer County, Hydrologic Unit 10100004, on right bank, at bridge on Caprock Road, 5.8 mi (9.3 km) northwest of Kinsey.

DRAINAGE AREA.--28.5 mi² (73.8 km²).

PERIOD OF RECORD.--Water years 1978 to current year.

REMARKS.--Scheduled samplings were not possible during periods of no flow.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)
MAR 15...	1430	32	300	8.4	12.0	.5	12.7	98	K22	K42000
APR 03...	1445	1.0	865	8.3	5.0	5.5	11.6	101	<20	K48000
MAY 31...	1330	.19	1610	8.4	16.0	19.0	6.5	76	K36000	K25000
JUL 26...	0955	.72	1150	8.5	16.5	16.0	8.0	99	K19000	K43000

DATE	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)
MAR 15...	39	0	11	2.9	49	3.4	3.4	88	1	76
APR 03...	96	0	22	10	150	6.7	3.0	180	0	150
MAY 31...	110	0	25	11	310	13	.4	220	1	180
JUL 26...	140	0	30	16	180	6.6	5.9	270	2	220

DATE	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)
MAR 15...	.6	69	1.4	.1	3.5	186	185	.26	16.2	.46
APR 03...	1.4	270	2.4	.2	4.0	678	551	.92	1.83	.67
MAY 31...	1.4	620	3.6	.4	5.7	1120	1090	1.52	.57	3.6
JUL 26...	1.4	430	22	.4	12	745	830	1.01	1.45	2.7

DATE	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, KJEL-DAHL, TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C) (00689)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
MAR 15...	.23	1.6	1.8	.17	.01	--	--	30	70
APR 03...	.11	1.1	1.2	.42	.03	12	2.9	120	210
MAY 31...	.13	3.6	3.9	3.6	.06	29	12	160	180
JUL 26...	.10	6.1	6.2	4.4	.19	20	--	110	50

06309079 MUSTER CREEK NEAR KINSEY, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	ALUMINUM, DISSOLVED (UG/L AS AL) (01106)	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DISSOLVED (UG/L AS AS) (01000)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA) (01007)	BARIUM, DISSOLVED (UG/L AS BA) (01005)	BERYLLIUM, TOTAL RECOVERABLE (UG/L AS BE) (01012)	BERYLLIUM, DISSOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD) (01027)	CADMIUM DISSOLVED (UG/L AS CD) (01025)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)
MAR 15...	1430	20	5	1	500	0	0	0	3	0	40
MAY 31...	1330	0	10	1	1400	100	10	0	9	0	200
JUL 26...	0955	--	--	--	--	--	--	--	--	--	--

DATE	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COBALT, TOTAL RECOVERABLE (UG/L AS CO) (01037)	COBALT, DISSOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)	COPPER, DISSOLVED (UG/L AS CU) (01040)	LEAD, TOTAL RECOVERABLE (UG/L AS PB) (01051)	LEAD, DISSOLVED (UG/L AS PB) (01049)	LITHIUM TOTAL RECOVERABLE (UG/L AS LI) (01132)	LITHIUM DISSOLVED (UG/L AS LI) (01130)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)
MAR 15...	10	19	0	70	0	150	0	30	7	680	10
MAY 31...	10	75	2	220	10	--	1	120	20	2800	0
JUL 26...	--	--	--	--	--	--	--	--	--	--	--

DATE	MERCURY TOTAL RECOVERABLE (UG/L AS HG) (71900)	MERCURY DISSOLVED (UG/L AS HG) (71890)	MOLYBDENUM, TOTAL RECOVERABLE (UG/L AS MO) (01062)	MOLYBDENUM, DISSOLVED (UG/L AS MO) (01060)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI) (01067)	NICKEL, DISSOLVED (UG/L AS NI) (01065)	SELENIUM, TOTAL (UG/L AS SE) (01147)	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	VANADIUM, DISSOLVED (UG/L AS V) (01085)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)	ZINC, DISSOLVED (UG/L AS ZN) (01090)
MAR 15...	.2	--	1	0	70	0	1	1	1.0	170	10
MAY 31...	.5	.0	1	0	200	10	8	4	2.3	760	10
JUL 26...	.6	--	--	--	--	--	--	--	--	--	--

DATE	TIME	ARSENIC TOTAL IN BOTTOM MATERIAL (UG/G AS AS) (01003)	BARIUM, RECOV. FM BOTTOM MATERIAL (UG/G AS BA) (01008)	BERYLLIUM, RECOV. FM BOTTOM MATERIAL (UG/G) (01013)	CADMIUM RECOV. FM BOTTOM MATERIAL (UG/G AS CD) (01028)	CHROMIUM, RECOV. FM BOTTOM MATERIAL (UG/G) (01029)	COBALT, RECOV. FM BOTTOM MATERIAL (UG/G AS CO) (01038)	COPPER, RECOV. FM BOTTOM MATERIAL (UG/G AS CU) (01043)
MAR 15...	1430	.0	100	1	0	6	0	16
MAY 31...	1330	13	240	2	1	0	20	17

DATE	LEAD, RECOV. FM BOTTOM MATERIAL (UG/G AS PB) (01052)	MANGANESE, RECOV. FM BOTTOM MATERIAL (UG/G) (01053)	MERCURY RECOV. FM BOTTOM MATERIAL (UG/G AS HG) (71921)	MOLYBDENUM, RECOV. FM BOTTOM MATERIAL (UG/G) (01063)	NICKEL, RECOV. FM BOTTOM MATERIAL (UG/G AS NI) (01068)	SELENIUM, TOTAL IN BOTTOM MATERIAL (UG/G) (01148)	ZINC, RECOV. FM BOTTOM MATERIAL (UG/G AS ZN) (01093)
MAR 15...	10	500	.20	0	20	<1	28
MAY 31...	25	3700	.06	0	40	0	43

06309079 MUSTER CREEK NEAR KINSEY, MT--Continued

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPER-ATURE (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70340)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)	SED. SUSP. FALL DIAM. % FINER THAN .125 MM (70343)	SED. SUSP. FALL DIAM. % FINER THAN .250 MM (70344)
MAR 15...	1430	.5	32	2220	192	72	84	95	98	100
APR 03...	1445	5.5	1.0	1080	2.9	--	--	--	--	--
MAY 31...	1330	19.0	.19	10800	5.5	92	98	100	--	--
JUL 26...	0955	16.0	.72	12700	25	97	99	100	--	--

PARTICLE-SIZE DISTRIBUTION OF SURFACE BED MATERIAL, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	BED MAT. FALL DIAM. % FINER THAN .062 MM (80158)	BED MAT. FALL DIAM. % FINER THAN .125 MM (80159)	BED MAT. FALL DIAM. % FINER THAN .250 MM (80160)	BED MAT. FALL DIAM. % FINER THAN .500 MM (80161)	BED MAT. FALL DIAM. % FINER THAN 1.00 MM (80162)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM (80173)
MAR 15...	1430	10	36	89	97	99	100	--	--	--	--
MAY 31...	1330	2	5	12	15	20	29	59	90	94	100

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

PHYTOPLANKTON

	MAR 15,79	APR 3,79	MAY 31,79	JUL 26,79
DATE	MAR 15,79	APR 3,79	MAY 31,79	JUL 26,79
TIME	1430	1445	1330	0955
TOTAL CELLS/ML	630	0	0	0
DIVERSITY: DIVISION	0.8	0.0	0.0	0.0
.CLASS	0.8	0.0	0.0	0.0
..ORDER	0.8	0.0	0.0	0.0
...FAMILY	0.8	0.0	0.0	0.0
....GENUS	0.8	0.0	0.0	0.0

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHRYSOPHYTA								
.BACILLARIOPHYCEAE								
..CENTRALES								
...COSCINODISCACEAE								
....CYCLOTELLA	160#	25	--	-	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)								
.EUGLENOPHYCEAE								
..EUGLENALES								
...EUGLENACEAE								
....TRACHELOMONAS	470#	75	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

06309145 CUSTER CREEK NEAR KINSEY, MT

LOCATION.--Lat 46°42'03", long 105°29'14", in NE¼NW¼NW¼ sec.19, T.11 N., R.50 E., Prairie County, Hydrologic Unit 10100001, on right bank, at prairie trail ford and just upstream from railroad bridge, about 0.8 river mile (1.3 km) upstream from mouth, and 12.0 mi (19.3 km) northeast of Kinsey.

DRAINAGE AREA.--151 mi² (391 km²).

PERIOD OF RECORD.--Water years 1978 to current year.

REMARKS.--Scheduled samplings were not possible during periods of no flow.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)
MAR										
12...	1515	154	525	8.1	7.5	.0	13.8	104	<33	K50000
APR										
03...	1130	11	2190	8.3	4.0	1.0	13.1	100	<2	1900
MAY										
31...	0935	.22	3070	8.4	11.5	14.5	7.2	75	930	K2600
JUL										
26...	1320	7.6	1130	8.2	25.0	23.5	7.7	96	K28000	K130000

DATE	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)
MAR									
12...	96	14	23	9.4	81	3.6	4.7	100	0
APR									
03...	530	240	110	63	330	6.2	6.5	350	0
MAY									
31...	610	250	120	75	550	9.7	9.0	440	2
JUL									
26...	120	0	31	9.9	210	8.4	6.6	620	0

DATE	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)
MAR									
12...	84	1.3	170	2.1	.2	3.6	358	343	.49
APR									
03...	280	2.8	950	5.1	.2	6.9	1650	1640	2.24
MAY									
31...	370	2.8	1300	6.8	.3	5.8	2370	2290	3.22
JUL									
26...	510	6.3	350	2.9	.4	6.2	740	923	1.01

DATE	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C) (00689)
MAR									
12...	149	.45	.02	1.7	1.7	.02	.00	--	--
APR									
03...	49.0	.16	.06	.36	.42	.03	.00	7.4	1.2
MAY									
31...	1.41	.01	.06	.25	.31	--	.01	8.5	.6
JUL									
26...	15.2	1.5	2.2	1.0	3.2	1.9	.05	17	--

06309145 CUSTER CREEK NEAR KINSEY, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	ARSENIC TOTAL IN BOTTOM MATERIAL (UG/G AS AS) (01003)	BARIUM, RECOV. FM BOTTOM MATERIAL (UG/G AS BA) (01008)	BERYLLIUM, RECOV. FM BOTTOM MATERIAL (UG/G) (01013)	CADMIUM RECOV. FM BOTTOM MATERIAL (UG/G AS CD) (01028)	CHROMIUM, RECOV. FM BOTTOM MATERIAL (UG/G) (01029)	COBALT, RECOV. FM BOTTOM MATERIAL (UG/G AS CO) (01038)	COPPER, RECOV. FM BOTTOM MATERIAL (UG/G AS CU) (01043)
MAR								
12...	1515	15	160	0	0	8	10	15
MAY								
31...	0935	27	160	1	0	9	0	13

DATE	LEAD, RECOV. FM BOTTOM MATERIAL (UG/G AS PB) (01052)	MANGANESE, RECOV. FM BOTTOM MATERIAL (UG/G) (01053)	MERCURY RECOV. FM BOTTOM MATERIAL (UG/G AS HG) (71921)	MOLYBDENUM, RECOV. FM BOTTOM MATERIAL (UG/G) (01063)	NICKEL, RECOV. FM BOTTOM MATERIAL (UG/G AS NI) (01068)	SELENIUM, TOTAL IN BOTTOM MATERIAL (UG/G) (01148)	ZINC, RECOV. FM BOTTOM MATERIAL (UG/G AS ZN) (01093)
MAR							
12...	10	560	.30	1	20	0	33
MAY							
31...	10	1400	.02	3	20	0	30

DATE	TIME	ARSENIC TOTAL IN BOTTOM MATERIAL (UG/G AS AS) (01003)	BARIUM, RECOV. FM BOTTOM MATERIAL (UG/G AS BA) (01008)	BERYLLIUM, RECOV. FM BOTTOM MATERIAL (UG/G) (01013)	CADMIUM RECOV. FM BOTTOM MATERIAL (UG/G AS CD) (01028)	CHROMIUM, RECOV. FM BOTTOM MATERIAL (UG/G) (01029)	COBALT, RECOV. FM BOTTOM MATERIAL (UG/G AS CO) (01038)	COPPER, RECOV. FM BOTTOM MATERIAL (UG/G AS CU) (01043)
MAR								
12...	1515	15	160	0	0	8	10	15
MAY								
31...	0935	27	160	1	0	9	0	13

DATE	LEAD, RECOV. FM BOTTOM MATERIAL (UG/G AS PB) (01052)	MANGANESE, RECOV. FM BOTTOM MATERIAL (UG/G) (01053)	MERCURY RECOV. FM BOTTOM MATERIAL (UG/G AS HG) (71921)	MOLYBDENUM, RECOV. FM BOTTOM MATERIAL (UG/G) (01063)	NICKEL, RECOV. FM BOTTOM MATERIAL (UG/G AS NI) (01068)	SELENIUM, TOTAL IN BOTTOM MATERIAL (UG/G) (01148)	ZINC, RECOV. FM BOTTOM MATERIAL (UG/G AS ZN) (01093)
MAR							
12...	10	560	.30	1	20	0	33
MAY							
31...	10	1400	.02	3	20	0	30

RADIOCHEMICAL ANALYSES, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	GROSS ALPHA, DISSOLVED (UG/L AS U-NAT) (80030)	GROSS ALPHA, DISSOLVED (PCI/L AS U-NAT) (01515)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT) (80040)	GROSS ALPHA, SUSP. TOTAL (PCI/L AS U-NAT) (01516)	GROSS BETA, DISSOLVED (PCI/L AS CS-137) (03515)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137) (03516)	GROSS BETA, DISSOLVED (PCI/L AS SR/YT-90) (80050)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/YT-90) (80060)
MAR									
12...	1515	<2.5	<1.7	62	42	3.6	34	3.5	32
MAY									
31...	0935	<32	<22	<.4	<.3	15	1.4	14	1.5

06309145 CUSTER CREEK NEAR KINSEY, MT--Continued

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPER-ATURE (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70340)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)	SED. SUSP. FALL DIAM. % FINER THAN .125 MM (70343)	SED. SUSP. FALL DIAM. % FINER THAN .250 MM (70344)
MAR 12...	1515	.0	154	1690	703	78	89	96	99	100
APR 03...	1130	1.0	11	130	3.9	--	--	--	--	--
MAY 31...	0935	14.5	.22	71	.04	--	--	--	--	--
JUL 26...	1320	23.5	7.6	18900	388	88	99	100	--	--

PARTICLE-SIZE DISTRIBUTION OF SURFACE BED MATERIAL, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	BED MAT. FALL DIAM. % FINER THAN .062 MM (80158)	BED MAT. FALL DIAM. % FINER THAN .125 MM (80159)	BED MAT. FALL DIAM. % FINER THAN .250 MM (80160)	BED MAT. FALL DIAM. % FINER THAN .500 MM (80161)	BED MAT. FALL DIAM. % FINER THAN 1.00 MM (80162)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM (80173)	BED MAT. SIEVE DIAM. % FINER THAN 64.0 MM (80174)
MAR 12...	1515	21	30	35	38	43	49	59	72	82	96	100
MAY 31...	0935	4	7	9	10	12	15	22	37	50	80	100

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

PHYTOPLANKTON

DATE TIME	MAR 12,79 1515	APR 3,79 1130	MAY 31,79 0935	JUL 26,79 1320
TOTAL CELLS/ML	160	0	64	0
DIVERSITY: DIVISION	0.0	0.0	0.0	0.0
.CLASS	0.0	0.0	0.0	0.0
..ORDER	0.0	0.0	0.0	0.0
...FAMILY	0.0	0.0	0.0	0.0
....GENUS	0.0	0.0	0.7	0.0
	0.0	0.0	0.7	0.0

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHRYSOPHYTA								
.BACILLARIOPHYCEAE								
..PENNALES								
...FRAGILARIACEAE								
....FRAGILARIA	160#	100	--	-	--	-	--	-
....SYNEDRA	--	-	--	-	13#	20	--	-
...NITZSCHIACEAE								
....NITZSCHIA	--	-	--	-	52#	80	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

06324500 POWDER RIVER AT MOORHEAD, MT

LOCATION.--Lat 45°04'04", long 105°52'10", in NW¼SE¼NW¼ sec.8, T.9 S., R.48 E., Powder River County, Hydrologic Unit 10090207, on left bank 500 ft (152 m) downstream from discontinued post office at Moorhead, 6.2 mi (10.0 km) upstream from Buffalo Creek, and at mile 184.8 (297.3 km).

DRAINAGE AREA.--8,088 mi^2 (20,948 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1929 to September 1972, October 1974 to current year. Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WSP 1309: 1932(M). WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 3,334.63 ft (1,016.395 m) National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to Aug. 28, 1931, nonrecording gage at site 0.3 mi (0.5 km) upstream at different datum. Aug. 28, 1931, to Mar. 21, 1956, water-stage recorder at site 1.2 mi (1.9 km) upstream at different datum. Mar. 22 to July 24, 1956, nonrecording gage at site 0.3 mi (0.5 km) downstream at different datum. July 25 to Sept. 12, 1956, nonrecording gage at present site and datum.

REMARKS.--Water-discharge records good except those for winter period, which are poor. Some regulation by three reservoirs in Wyoming with combined usable capacity of 36,800 acre-ft (45.5 hm^3). Diversions for irrigation of about 66,300 acres (268 km^2) above station.

AVERAGE DISCHARGE.--48 years, 467 ft^3/s (13.23 m^3/s), 338,300 acre-ft/yr (417 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 33,000 ft^3/s (935 m^3/s) May 20, 1978, gage height, 15.24 ft (4.645 m); maximum gage height, 17.7 ft (5.39 m) Mar. 21, 1956, datum then in use (ice jam); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Sept 30, 1923, reached a stage of 19 ft (5.8 m) site and datum used 1931-56, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, undetermined (ice jam) Mar. 17, no peaks above base of 3,700 ft^3/s (105 m^3/s); maximum gage height, 8.94 ft (2.725 m) Mar. 17 (result of ice jam); minimum discharge, 49 ft^3/s (1.39 m^3/s) July 26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	248	323	110	90	96	110	651	409	792	380	330	316
2	248	296	100	120	92	110	642	387	715	390	270	269
3	248	296	100	150	100	100	573	409	582	370	193	248
4	255	289	110	140	110	105	524	462	516	350	162	213
5	248	289	100	120	130	110	493	565	462	340	134	193
6	255	283	90	130	150	115	493	616	439	580	109	162
7	255	283	110	140	140	120	454	651	462	420	92	145
8	276	283	120	140	130	125	424	633	462	379	80	114
9	276	270	140	150	130	130	424	725	439	380	84	105
10	270	220	160	140	140	140	493	715	439	373	92	105
11	270	180	190	150	130	160	573	590	424	316	60	105
12	270	130	200	130	170	180	562	573	410	283	80	114
13	270	100	200	100	125	240	582	625	380	233	96	109
14	270	76	192	90	115	300	582	633	350	206	119	105
15	270	70	210	100	100	500	557	625	330	187	162	109
16	270	70	190	110	96	1000	532	516	310	174	276	114
17	283	75	170	120	100	2200	565	470	1200	145	262	109
18	283	80	160	130	120	1890	524	477	1000	129	255	109
19	283	80	190	150	130	1460	532	607	640	109	270	109
20	289	70	200	180	120	1300	565	763	680	96	283	105
21	283	65	200	170	110	1150	532	687	720	84	303	109
22	276	60	210	170	100	894	540	616	660	70	359	109
23	283	72	210	150	94	782	548	573	610	101	394	109
24	283	82	200	160	90	633	493	557	560	80	524	109
25	276	95	170	162	110	625	454	557	520	57	462	105
26	276	110	150	150	120	565	439	557	540	54	424	105
27	276	120	130	130	110	500	470	565	500	70	409	105
28	270	130	110	120	110	573	500	582	450	1040	401	101
29	270	130	90	110	---	540	470	904	410	812	401	105
30	283	120	80	105	---	493	439	1140	420	915	409	101
31	296	---	76	100	---	625	---	1020	---	485	373	---
TOTAL	8409	4747	4668	4107	3268	17775	15650	19209	16422	9588	7888	4036
MEAN	271	158	151	132	117	573	522	620	547	309	254	135
MAX	296	323	210	180	170	2200	651	1140	1200	1040	524	316
MIN	248	60	76	90	90	100	424	387	310	54	80	101
AC-FT	16680	9420	9260	8150	6460	35260	31040	38100	32570	19020	15650	8010

CAL YR 1978 TOTAL 399042 MEAN 1093 MAX 27500 MIN 60 AC-FT 791500
WTR YR 1979 TOTAL 115767 MEAN 317 MAX 2200 MIN 54 AC-FT 229600

06324500 POWDER RIVER AT MOORHEAD, MT--Continued

WATER-QUALITY RECORDS

LOCATION.--Samples collected at bridge on county road, 1.1 mi (1.8 km) upstream from discontinued post office at Moorhead, 1.2 mi (1.9 km) upstream from present gage.

PERIOD OF RECORD.--Water years 1951-53, 1956-57, 1969-72, 1975 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: February 1951 to September 1953, October 1955 to September 1957, October 1974 to September 1977, March to September 1978, March to September 1979.
SUSPENDED SEDIMENT DISCHARGE: October 1974 to September 1977, March to September 1978, March to September 1979.

REMARKS.--Flow regulated by reservoirs and diversions for irrigation upstream from station. Flow affected by ice during most of winter months.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum daily, 32.0°C July 7, 1951; minimum daily, 0.0°C on many days during winter periods most years.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 40,500 mg/L June 24, 1976; minimum daily mean, 5 mg/L Sept. 15, 1975.
SEDIMENT LOADS: Maximum daily, 2,230,000 tons (2,020,000 megagrams) May 20, 1978; minimum daily, 0.24 ton (0.22 megagram) Sept. 15, 1975.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum daily, 30.0°C July 19, 22, Aug. 5
SEDIMENT CONCENTRATIONS: Maximum daily mean, 35,400 mg/L July 29; minimum daily mean, 65 mg/L July 25.
SEDIMENT LOADS: Maximum daily, 101,000 tons (91,600 megagrams) July 28; minimum daily, 10 tons (9.1 megagrams) July 25.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	HARD-NESS (MG/L AS CACO3) (00900)
OCT										
12...	0930	276	1	2170	8.5	8.5	9.0	10.2	99	630
17...	1535	293	--	2060	8.4	11.0	9.5	--	--	550
NOV										
07...	0920	289	1	2090	8.3	12.0	2.0	12.5	102	510
DEC										
14...	1000	192	1	2420	7.6	-4.0	.0	7.8	60	700
JAN										
25...	1000	162	1	2520	7.9	-7.0	.0	5.4	42	670
FEB										
07...	1045	141	2	2680	7.9	.0	.0	4.0	31	690
MAR										
27...	1030	509	1	2740	8.2	6.0	1.5	11.8	96	760
APR										
10...	0850	486	2	3390	8.2	8.0	9.0	9.6	95	820
MAY										
08...	1030	689	2	2610	8.4	8.0	9.5	9.2	92	610
JUN										
06...	1030	436	3	1570	8.3	17.5	19.0	7.6	93	410
JUL										
10...	0930	386	1	1650	8.4	22.5	22.0	7.6	98	490
31...	0945	487	0	2050	7.9	21.0	19.0	7.3	88	--
SEP										
06...	0900	156	0	2100	8.5	15.5	16.5	8.5	97	560

06324500 POWDER RIVER AT MOORHEAD, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	BICARBONATE (MG/L AS HCO3) (00440)	CARBONATE (MG/L AS CO3) (00445)	ALKALINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DISSOLVED (MG/L AS CO2) (00405)
OCT										
12...	410	150	61	260	4.5	7.2	--	--	220	--
17...	300	120	61	260	4.8	6.1	290	7	250	1.9
NOV										
07...	290	110	56	250	4.6	5.3	--	--	220	--
DEC										
14...	400	160	72	300	4.9	7.9	--	--	300	--
JAN										
25...	340	160	65	320	5.4	6.4	--	--	330	--
FEB										
07...	380	170	65	340	5.6	8.1	--	--	310	--
MAR										
27...	520	180	75	360	5.7	7.3	--	--	240	--
APR										
10...	580	190	84	410	6.2	6.8	--	--	240	--
MAY										
08...	330	140	63	380	6.7	6.5	--	--	280	--
JUN										
06...	250	95	41	190	4.1	5.2	--	--	160	--
JUL										
10...	320	120	46	190	3.7	6.5	--	--	170	--
31...	--	--	--	--	--	--	--	--	110	--
SEP										
06...	370	130	56	260	4.8	6.4	--	--	190	--

DATE	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	BROMIDE DISSOLVED (MG/L AS BR) (71870)	IODIDE, DISSOLVED (MG/L AS I) (71865)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)
OCT										
12...	670	170	.8	.8	.08	6.2	1460	1.99	1090	.06
17...	650	170	.6	--	--	6.4	1420	1.96	1140	.06
NOV										
07...	610	170	.4	--	--	7.8	1340	1.82	1050	.09
DEC										
14...	760	190	.4	--	--	11	1680	2.28	871	.40
JAN										
25...	730	240	.4	.9	.16	13	1730	2.35	757	.27
FEB										
07...	700	240	.5	--	--	12	1720	2.34	655	.47
MAR										
27...	990	190	.5	--	--	7.1	1950	2.65	2680	.59
APR										
10...	1200	160	.6	.7	.08	6.3	2200	2.99	2890	.59
MAY										
08...	970	150	.6	--	--	6.7	1890	2.57	3520	.70
JUN										
06...	510	89	.5	.4	.05	8.2	1040	1.41	1220	.28
JUL										
10...	550	100	.4	--	--	8.6	1120	1.52	1170	.04
31...	990	61	.5	--	--	6.5	--	--	--	.54
SEP										
06...	710	150	.4	--	--	7.4	1430	1.94	602	.19

06324500 POWDER RIVER AT MOORHEAD, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C) (00689)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
OCT									
12...	.04	1.1	1.1	.33	--	6.2	--	340	50
17...	.02	.98	1.0	.30	.01	--	--	330	20
NOV									
07...	.02	.89	.91	.29	--	--	--	310	40
DEC									
14...	.05	.51	.56	.07	--	--	--	360	30
JAN									
25...	.04	.30	.34	.06	--	3.9	3.6	400	10
FEB									
07...	.13	.39	.52	.03	--	--	--	400	0
MAR									
27...	.13	2.5	2.6	.86	--	--	--	270	30
APR									
10...	.03	2.2	2.2	.31	--	5.1	--	330	20
MAY									
08...	.23	.47	.70	1.1	--	--	--	340	10
JUN									
06...	.06	1.3	1.4	.55	--	8.5	11	230	10
JUL									
10...	.06	1.4	1.5	.34	--	--	--	260	10
31...	.04	.53	.57	6.3	--	--	--	780	--
SEP									
06...	.13	.09	.22	.36	--	--	--	310	30

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)
JUN												
06...	1030	4	1	0	0	0	1	20	0	28	2	22000

DATE	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
JUN												
06...	30	0	550	0	.1	.0	28	2	2	1	120	20

PESTICIDE ANALYSES, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	PCB, TOTAL (UG/L) (39516)	PCB, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39519)	ALDRIN, TOTAL (UG/L) (39330)	ALDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39333)	CHLOR-DANE, TOTAL (UG/L) (39350)	CHLOR-DANE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39351)	DDD, TOTAL (UG/L) (39360)	DDD, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39363)	DDE, TOTAL (UG/L) (39365)	DDE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39368)
JUN											
11...	1440	.0	0	.00	.0	.0	0	.00	.0	.00	.0

06324500 POWDER RIVER AT MOORHEAD, MT--Continued

PESTICIDE ANALYSES, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	DDT, TOTAL (UG/L) (39370)	DDT, TOTAL IN BOTTOM MATERIAL (UG/KG) (39373)	DIAZINON, TOTAL (UG/L) (39570)	DIELDRIN TOTAL (UG/L) (39380)	DIELDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG) (39383)	ENDOSULFAN, TOTAL (UG/L) (39388)	ENDRIN, TOTAL (UG/L) (39390)	ENDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG) (39393)	ETHION, TOTAL (UG/L) (39398)	HEPTACHLOR, TOTAL (UG/L) (39410)
JUN										
11...	.00	.0	.00	.00	.0	.00	.00	.0	.00	.00

DATE	HEPTACHLOR, TOTAL IN BOTTOM MATERIAL (UG/KG) (39413)	HEPTACHLOR EPOXIDE TOTAL (UG/L) (39420)	HEPTACHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG) (39423)	LINDANE TOTAL (UG/L) (39340)	LINDANE TOTAL IN BOTTOM MATERIAL (UG/KG) (39343)	MALATHION, TOTAL (UG/L) (39530)	METHYL PARATHION, TOTAL (UG/L) (39600)	METHYL TRITHION, TOTAL (UG/L) (39790)	MIREX, TOTAL (UG/L) (39755)	PARATHION, TOTAL (UG/L) (39540)
JUN										
11...	.0	.00	.0	.00	.0	.00	.00	.00	.00	.00

DATE	PERTHANE TOTAL (UG/L) (39034)	TOXAPHENE, TOTAL (UG/L) (39400)	TOXAPHENE, TOTAL IN BOTTOM MATERIAL (UG/KG) (39403)	TOTAL TRITHION (UG/L) (39786)	2,4-D, TOTAL (UG/L) (39730)	2,4-D, TOTAL IN BOTTOM MATERIAL (UG/KG) (39731)	2,4,5-T TOTAL (UG/L) (39740)	2,4,5-T TOTAL IN BOTTOM MATERIAL (UG/KG) (39741)	SILVEX, TOTAL (UG/L) (39760)	SILVEX, TOTAL IN BOTTOM MATERIAL (UG/KG) (39761)
JUN										
11...	.00	0	0	.00	.00	0	.00	0	.00	.0

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1						---	4.0	14.0	17.0	24.0	24.0	20.0
2						---	7.0	7.0	19.0	24.0	25.0	16.0
3						---	7.0	17.0	21.0	27.0	27.0	25.0
4						---	7.0	8.0	22.0	24.0	25.0	20.0
5						---	5.0	19.5	24.0	26.5	30.0	22.0
6						---	2.0	15.0	17.0	25.0	23.0	25.0
7						---	10.5	14.0	14.0	29.0	21.0	25.0
8						---	14.0	10.0	16.0	29.0	20.0	28.0
9						---	15.0	8.0	14.0	25.0	23.0	20.0
10						---	11.0	10.0	15.0	28.0	27.0	18.0
11						---	5.0	12.0	22.0	28.0	29.0	15.0
12						---	6.0	15.0	26.0	27.0	23.0	15.0
13						---	9.0	16.0	25.0	22.0	18.0	15.0
14						---	8.5	19.0	20.0	23.0	20.0	15.0
15						---	15.0	23.0	20.0	18.0	25.0	21.0
16						---	17.0	22.0	17.0	21.0	25.0	20.0
17						4.0	18.0	18.0	17.0	28.0	25.0	15.0
18						2.0	14.0	15.0	16.0	29.0	21.0	20.0
19						2.0	11.0	18.0	17.0	30.0	22.0	14.0
20						4.0	14.0	19.0	19.0	20.0	20.0	20.0
21						.0	8.0	17.0	21.0	29.0	20.0	21.0
22						5.0	12.5	15.5	21.0	30.0	21.0	21.0
23						5.0	10.0	22.0	21.0	25.0	19.0	18.0
24						6.0	11.0	24.0	25.0	---	22.0	22.0
25						4.5	12.0	23.0	22.0	25.0	20.0	22.0
26						4.0	10.0	24.0	23.0	25.0	21.0	20.0
27						7.0	14.0	27.0	22.0	26.0	20.0	19.0
28						7.0	12.0	17.0	24.0	24.0	---	18.0
29						10.0	14.0	14.0	24.0	24.0	25.0	10.0
30						10.5	15.0	11.0	25.0	21.0	24.0	19.0
31						9.0	---	10.0	---	25.0	20.0	---
MEAN						5.5	10.5	16.5	20.0	25.5	23.0	19.5

WTR YR 1979 MEAN 18.0 MAX 30.0 MIN .0

06324500 POWDER RIVER AT MOORHEAD, MT--Continued

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1											---	---
2											---	---
3											---	---
4											---	---
5											---	---
6											---	---
7											---	---
8											---	---
9											---	---
10											---	---
11											---	---
12											---	---
13											---	---
14											---	---
15											---	---
16											---	---
17											10400	61800
18											6400	32700
19											6000	23700
20											9600	33700
21											7360	22900
22											6220	15000
23											6430	13600
24											3670	6270
25											2630	4440
26											2170	3310
27											1740	2350
28											1820	2820
29											1710	2490
30											1340	1780
31											2220	3750
TOTAL											---	230610
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	2470	4340	1470	1620	3530	7550	796	817	10100	9000	2260	1930
2	3510	6080	1240	1300	3290	6350	825	869	4500	3280	1550	1210
3	3430	5310	1290	1420	2540	3990	635	634	1800	938	1380	924
4	2800	3960	2160	2690	1890	2630	423	377	979	428	1280	736
5	2390	3180	3250	4960	1690	2110	2040	1870	850	308	860	448
6	2150	2860	5150	8570	1470	1740	3800	5950	753	222	671	293
7	1710	2100	5460	9600	1370	1710	1200	1360	677	168	572	224
8	1480	1690	5760	9840	1170	1460	642	657	500	108	448	138
9	1360	1560	6460	12600	1260	1520	694	712	353	80	358	101
10	2020	2690	6690	12900	1410	1670	688	693	251	62	323	92
11	2490	3850	4680	7460	1750	2000	585	499	205	44	280	79
12	2520	3960	3530	5460	1430	1580	423	323	171	37	281	66
13	2840	4460	3910	6600	1010	1040	310	195	250	65	292	86
14	2620	4120	4170	7130	813	768	220	122	284	91	253	72
15	2770	4170	4740	8000	692	617	169	85	372	160	244	72
16	2510	3610	4350	6060	555	465	182	86	720	537	223	69
17	2700	4120	4170	5290	4200	13600	118	46	572	405	195	57
18	3210	4540	3790	4880	13000	35100	90	31	400	275	190	56
19	3540	5080	5170	8470	9640	16700	96	28	425	310	186	55
20	3360	5130	6570	13500	6170	11300	64	22	700	535	205	56
21	3290	4730	6020	11200	3830	7450	66	15	839	686	233	69
22	2500	3650	4480	7450	2930	5220	72	14	1920	1860	219	64
23	2470	3650	3350	5180	2100	3460	260	71	5000	5320	207	61
24	2200	2930	3790	5700	1640	2480	157	34	1500	2120	166	49
25	1750	2150	3520	5290	1420	1990	65	10	21000	26200	176	50
26	1520	1800	3840	5770	1200	1750	122	18	14300	16400	174	49
27	1550	1970	4170	6360	898	1210	141	27	9250	10200	168	48
28	2020	2730	3230	5080	898	1090	34800	101000	5700	6170	175	46
29	1770	2250	6220	15700	905	1000	35400	78200	3720	4030	133	38
30	1960	2320	7980	24600	781	886	31900	76600	3900	4310	120	33
31	---	---	5090	14000	---	---	21600	28300	3420	3440	---	---
TOTAL	---	104990	---	244680	---	140436	---	299665	---	97784	---	7295

TOTAL LOAD FOR YEAR: 1125465 TONS.

06324500 POWDER RIVER AT MOORHEAD, MT--Continued

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPER-ATURE (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70340)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)	SED. SUSP. FALL DIAM. % FINER THAN .125 MM (70343)	SED. SUSP. FALL DIAM. % FINER THAN .250 MM (70344)	SED. SUSP. FALL DIAM. % FINER THAN .500 MM (70345)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT												
12...	0930	9.0	276	644	480	--	--	--	--	--	--	99
NOV												
07...	0920	2.0	289	520	406	--	--	--	--	--	--	97
DEC												
14...	1000	.0	192	180	93	--	--	--	--	--	--	81
JAN												
25...	1000	.0	162	169	74	--	--	--	--	--	--	95
FEB												
07...	1045	.0	141	139	53	--	--	--	--	--	--	97
MAR												
27...	1030	1.5	509	1710	2350	65	89	95	97	100	--	--
APR												
10...	0850	9.0	486	1560	2050	63	88	100	--	--	--	--
MAY												
08...	1030	9.5	689	5410	10100	50	72	90	97	100	--	--
JUN												
06...	1030	19.0	436	1340	1580	51	68	83	95	99	100	--
JUL												
10...	0930	22.0	386	755	787	--	--	--	--	--	--	86
31...	0945	19.0	487	24800	32600	68	96	97	99	100	--	--
SEP												
06...	0900	16.5	156	632	266	--	--	--	--	--	--	100

06324710 POWDER RIVER AT BROADUS, MT

LOCATION(REVISED).--Lat 45°25'37", long 105°24'05", in NE¼SE¼ sec.3, T.5 S., R.51 E., Powder River County, Hydrologic Unit 10090207, on right bank 100 ft (30.5 m) upstream from bridge on U.S. Highway 212, 0.4 mi (0.6 km) downstream from Doyle Creek, 1 mi (2 km) south of Broadus and 7 mi (11 km) upstream from Little Powder River.

DRAINAGE AREA.--8,748 mi² (22,657 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1975 to current year.

REVISED RECORDS.--MT-78-1: 1976(M), 1977(M).

GAGE.--Water-stage recorder. Datum of gage is 3,016.30 ft (919.368 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records fair except those for winter period, which are poor. Some regulation by three reservoirs in Wyoming with combined usable capacity of 36,800 acre-feet (45.4 hm³). Diversions for irrigation of about 70,000 acres (283 km²) above station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 30,000 ft³/s (850 m³/s) May 21, 1978, gage height, 12.96 ft (3.95 m³/s); minimum daily, 6.6 ft³/s (0.19 m³/s) July 19, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, undetermined, Mar. 17, no peak above base of 4,000 ft³/s (113 m³/s); maximum gage height observed, 6.90 ft (2.103 m) Mar. 17 (backwater from ice); minimum discharge observed, 37 ft³/s (1.05 m³/s) June 27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	261	325	115	90	96	120	714	443	825	372	521	459
2	249	362	105	120	92	120	714	422	661	325	367	377
3	277	343	105	150	100	110	668	392	636	339	307	330
4	245	334	115	140	110	115	605	402	550	303	223	265
5	253	334	105	120	130	120	575	454	533	265	164	230
6	253	330	95	130	155	125	550	556	465	290	140	205
7	269	325	115	140	145	130	539	618	449	527	115	171
8	273	330	125	140	135	135	504	662	459	339	95	149
9	290	310	145	155	135	140	470	655	470	312	77	123
10	294	225	165	145	145	150	470	714	433	312	63	115
11	299	185	195	150	135	170	510	655	459	303	67	121
12	286	135	205	130	175	190	599	581	443	261	75	110
13	262	105	205	100	135	260	611	575	427	215	73	110
14	277	80	195	90	125	330	605	649	392	201	69	110
15	282	75	215	100	110	600	587	624	353	152	84	108
16	290	75	195	110	105	1200	575	605	321	164	105	105
17	294	80	175	120	110	2500	599	493	286	129	212	105
18	299	85	165	130	130	2100	581	438	1010	92	257	108
19	290	85	195	150	140	1580	562	436	921	65	234	103
20	299	75	205	170	130	1330	562	624	575	52	249	103
21	303	70	205	180	120	1150	587	688	618	42	277	108
22	303	65	215	175	110	1030	550	611	668	47	294	105
23	299	75	215	155	105	825	562	575	593	46	412	103
24	307	85	205	165	100	804	575	527	545	54	433	100
25	303	100	175	155	120	843	515	527	510	69	668	105
26	294	115	155	150	130	624	465	527	465	51	569	103
27	294	125	135	130	120	599	443	568	481	25	515	105
28	294	135	115	120	120	569	465	550	443	26	510	93
29	290	135	95	110	---	624	510	581	397	940	510	93
30	290	125	85	105	---	605	476	841	356	686	493	95
31	303	---	80	100	---	539	---	952	---	825	533	---
TOTAL	8847	5228	4820	4125	3463	19537	16748	17997	15766	7833	8716	4517
MEAN	285	174	155	133	124	630	558	581	526	253	281	151
MAX	307	362	215	180	175	2500	714	952	1010	940	668	459
MIN	245	65	80	90	92	110	443	392	286	25	63	93
AC-FT	17550	10370	9560	8180	6870	38750	33220	35700	31270	15540	17290	8960

CAL YR 1978 TOTAL 413690 MEAN 1133 MAX 25100 MIN 65 AC-FT 820600
WTR YR 1979 TOTAL 117597 MEAN 322 MAX 2500 MIN 25 AC-FT 233300

06324710 POWDER RIVER AT BROADUS, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water year 1976 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: October 1975 to September 1978, March to September 1979.
SUSPENDED-SEDIMENT DISCHARGE: October 1975 to September 1978, March to September 1979.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum daily observed, 34.0°C July 12, 1976; minimum daily, 0.0°C on many days during winter periods.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 44,100 mg/L July 29, 1977; minimum daily mean, 24 mg/L Sept. 13, 1976.
SEDIMENT LOADS: Maximum daily, 1,570,000 tons (1,420,000 megagrams) May 21, 1978; minimum daily, 1.5 tons (1.4 megagrams) July 21, 22, 1977.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum daily, 30.0°C July 28.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 30,000 mg/L July 31; minimum daily mean, 92 mg/L July 20.
SEDIMENT LOADS: Maximum daily, 66,800 tons (60,600 megagrams) July 31; minimum daily, 9.3 tons (8.4 megagrams) July 28.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)
OCT 17...	1550	286	2150	8.3	14.0	10.0	600	350	130	66	270

DATE	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)
OCT 17...	4.8	4.0	300	0	250	2.4	670	160	.6	6.9	1540

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
OCT 17...	1460	2.09	1190	.04	.00	1.1	1.1	.240	.010	320	20

06324710 POWDER RIVER AT BROADUS, MT--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1						---	4.0	11.5	12.0	21.0	21.5	16.5
2						---	3.0	9.0	15.5	21.5	21.0	17.5
3						---	2.0	9.0	17.5	21.0	22.0	19.5
4						---	4.0	9.5	19.0	23.0	22.0	19.5
5						---	2.5	13.5	20.5	20.5	23.0	18.5
6						---	1.5	13.5	---	22.5	24.0	18.0
7						---	6.5	11.0	16.5	23.0	23.5	19.0
8						---	5.5	10.5	13.5	23.0	---	18.5
9						---	7.5	8.0	14.5	22.0	21.5	20.0
10						---	9.5	6.0	15.0	22.0	18.5	20.0
11						---	7.0	6.0	18.5	22.5	19.0	13.0
12						---	3.0	7.0	20.5	23.0	22.0	14.5
13						---	1.5	11.5	22.0	22.0	19.5	13.5
14						.0	4.0	12.0	21.5	19.5	17.0	11.0
15						.0	7.0	13.5	20.0	18.0	15.5	12.5
16						.0	9.0	16.5	19.0	20.0	21.0	14.5
17						.0	11.5	---	18.0	---	21.0	17.0
18						.0	13.5	19.0	17.0	---	20.5	15.0
19						.0	12.5	16.0	18.0	22.0	20.0	16.0
20						.0	8.5	14.0	16.0	22.5	20.0	15.0
21						.0	9.5	15.0	17.5	22.5	18.0	15.0
22						1.0	10.0	16.5	19.0	23.0	19.0	15.5
23						2.0	12.0	15.0	19.0	22.5	18.0	15.0
24						2.0	9.0	16.0	21.0	21.0	19.0	14.5
25						3.0	7.5	19.0	22.0	21.0	19.5	15.0
26						.0	9.0	18.0	21.0	20.0	17.5	16.0
27						1.0	7.0	21.0	21.0	20.0	18.0	---
28						2.0	10.0	20.0	20.5	30.0	19.0	---
29						3.0	12.5	15.0	21.5	23.0	18.5	---
30						5.0	9.5	12.5	22.5	21.0	20.0	---
31						5.5	---	13.0	---	21.5	21.0	---
MEAN						1.5	7.5	13.5	18.5	22.0	20.0	16.0

WTR YR 1979 MEAN 15.0 MAX 30.0 MIN .0

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPER-ATURE (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70340)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)	SED. SUSP. FALL DIAM. % FINER THAN .125 MM (70343)	SED. SUSP. FALL DIAM. % FINER THAN .250 MM (70344)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT											
11...	1330	12.5	288	590	459	--	--	--	--	--	98
MAR											
26...	1600	3.5	624	2750	4630	63	66	91	96	100	--
APR											
10...	1515	11.5	468	1190	1500	71	89	100	--	--	--
MAY											
09...	0915	7.5	689	3560	6620	55	80	86	96	100	--
JUN											
05...	1315	22.5	540	1660	2420	50	72	81	93	100	--
JUL											
10...	1300	22.5	327	810	715	--	--	--	--	--	90
31...	1400	--	797	23000	49500	60	68	97	99	100	--
SEP											
05...	1410	--	231	992	619	--	--	--	--	--	98

06324710 POWDER RIVER AT BROADUS, MT--Continued

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1											---	---
2											---	---
3											---	---
4											---	---
5											---	---
6											---	---
7											---	---
8											---	---
9											---	---
10											---	---
11											---	---
12											---	---
13											---	---
14											298	266
15											678	1100
16											1000	3240
17											5800	34200
18											9120	51700
19											5010	21400
20											4320	15500
21											6880	21400
22											6940	19300
23											6400	14300
24											5450	11800
25											4220	7330
26											3010	5070
27											2210	3570
28											1910	2930
29											1840	3100
30											1760	2870
31											1620	2360
TOTAL											---	220436
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	2030	3910	1320	1580	3930	6750	826	830	23600	33200	3790	4700
2	2520	4860	1150	1310	2290	4210	722	634	16300	16200	2660	2710
3	2580	4650	1030	1090	2550	4380	768	703	8100	6710	1900	1690
4	2890	4720	1000	1090	1890	2810	855	699	2920	1760	1300	930
5	2670	4150	1230	1510	1720	2480	600	429	1280	567	980	609
6	2230	3310	1540	2310	1520	1910	685	519	749	283	897	496
7	1990	2900	2210	3690	1230	1490	1840	2620	491	152	671	310
8	1730	2350	3360	6010	1210	1500	1330	1220	388	100	500	201
9	1350	1710	3790	6700	1200	1520	1170	986	310	64	411	136
10	1240	1570	5550	10700	1020	1190	750	632	270	46	350	109
11	1330	1830	5110	9040	1100	1360	670	548	252	46	311	102
12	1870	3020	4180	6560	1080	1290	437	308	255	52	253	75
13	2020	3330	3490	5420	920	1060	394	229	190	37	190	56
14	2090	3410	2830	4960	810	857	450	244	149	28	187	56
15	2250	3570	2950	4970	710	677	363	149	204	46	211	62
16	2200	3420	3230	5280	610	529	245	108	275	78	191	54
17	2460	3980	3460	4610	550	425	180	63	1180	675	162	52
18	2490	3910	3350	3960	15000	56500	130	32	1080	749	183	53
19	2220	3370	3310	3910	20100	50000	100	18	600	379	173	48
20	2360	3580	4410	7430	13600	21100	92	13	470	316	133	37
21	3940	4820	5000	9290	9000	15000	121	14	525	393	123	36
22	2810	4170	4290	7080	4800	8660	98	12	810	654	114	32
23	2520	3820	4170	6470	3400	5440	96	12	1590	1770	117	33
24	2320	3600	3080	4380	3130	4610	200	29	2110	2470	126	34
25	1970	2740	2240	3190	2140	2950	515	96	7200	13000	127	36
26	1690	2120	2190	3120	1450	1820	197	27	12000	18400	122	34
27	1390	1660	2620	4020	1380	1790	141	9.5	13400	18600	117	33
28	1310	1640	2060	3060	1820	2180	123	9.3	12400	17100	114	29
29	1480	2040	2520	3950	850	911	19600	55700	8200	11300	111	28
30	1420	1820	6200	14900	769	743	24900	46300	5500	7320	108	28
31	---	---	5910	15200	---	---	30000	66800	4150	5970	---	---
TOTAL	---	95980	---	166790	---	208142	---	179992.8	---	158465	---	12809

TOTAL LOAD FOR YEAR: 1048614.8 TONS.

06324970 LITTLE POWDER RIVER ABOVE DRY CREEK, NEAR WESTON, WY

LOCATION.--Lat 44°55'45", long 105°21'06", in NW¼SW¼ sec.13, T.57 N., R.71 W., Campbell County, Hydrologic Unit 10090208, on left bank 3.1 mi (5.0 km) upstream from Dry Creek, 5.0 mi (8.0 km) south of the Wyoming-Montana State line, and 20 mi (32 km) north of Weston.

DRAINAGE AREA.--1,235 mi^2 (3,199 km^2).

PERIOD OF RECORD.--October 1972 to current year.

REVISED RECORDS.--WDR WY-77-1: Drainage area. WDR WY-78-1: 1976(M).

GAGE.--Water-stage recorder. Altitude of gage is 3,410 ft (1.039 m), from topographic map.

REMARKS.--Water-discharge records good except those for winter period and those below 3.0 ft^3/s (0.085 m^3/s), which are poor. Diversion above station for irrigation of about 80 acres (32 hm^2) which lies below station. Since August 1976, the Rawhide Mine has intermittently pumped water into the river in T.52 N., R.71 W., about 45 mi (72 km) upstream.

AVERAGE DISCHARGE.--7 years, 28.0 ft^3/s (0.793 m^3/s) 20,290 acre-ft/yr (25.0 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,300 ft^3/s (150 m^3/s) May 19, 1978, gage height, 11.62 ft (3.542 m); maximum gage height, 11.63 ft (3.545 m) Mar. 20, 1978 (backwater from ice); no flow at times some years.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 130 ft^3/s (3.68 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Mar. 14	0830	--	--	a*6.42	1.957	Mar. 17	0600	*270	7.65	a*6.28	1.914

a-Backwater from ice.

Minimum daily discharge, 0.02 ft^3/s (0.001 m^3/s) Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.6	2.2	3.6	2.4	2.2	3.2	30	15	11	2.6	1.8	.04
2	1.6	2.2	3.4	2.5	2.3	3.0	27	15	11	2.2	.84	.06
3	1.5	2.4	3.1	2.5	2.3	2.9	24	16	8.5	1.6	.44	.06
4	1.4	2.4	3.3	2.6	2.4	3.1	24	15	7.8	1.3	.34	.06
5	1.6	2.4	3.1	2.5	2.5	3.2	23	14	7.3	2.0	.26	.07
6	2.1	2.5	2.9	2.6	2.5	3.5	22	16	6.9	56	.16	.06
7	2.0	2.8	2.7	2.6	2.5	4.1	20	16	6.6	17	.14	.07
8	2.0	2.5	2.8	2.9	2.4	4.7	19	15	6.6	7.9	.14	.07
9	1.8	3.0	2.9	2.8	2.6	120	18	14	4.4	4.4	1.1	.06
10	1.6	4.4	3.3	2.6	2.7	150	19	15	4.6	2.9	1.8	.07
11	1.5	4.1	3.2	2.8	2.7	110	21	14	5.5	3.0	.68	.06
12	1.5	3.7	3.4	2.7	2.7	110	24	14	5.3	2.3	1.6	.09
13	1.5	3.5	3.3	2.5	2.7	160	25	14	4.4	1.6	1.4	.07
14	1.5	3.3	3.5	2.4	2.6	190	29	13	4.0	.55	1.1	.07
15	1.5	3.2	3.7	2.5	2.4	150	44	12	3.4	.30	.76	.07
16	1.6	3.3	3.6	2.5	2.3	190	37	12	3.6	.49	1.1	.06
17	1.6	3.4	3.8	2.6	2.6	230	34	11	5.7	.55	1.1	.07
18	2.0	3.2	4.4	2.6	2.8	180	29	10	5.5	.49	.68	.09
19	1.8	3.0	4.3	2.7	2.9	140	24	9.5	4.8	.30	.44	.11
20	1.8	2.9	4.1	2.8	2.9	93	21	8.2	4.0	.22	.30	.11
21	2.0	3.0	4.1	2.9	2.8	68	18	7.8	3.4	.82	.26	.11
22	2.1	3.1	4.0	2.8	2.8	52	18	8.0	3.2	1.4	.14	.11
23	2.2	3.1	4.0	2.7	2.7	40	16	7.1	2.9	.55	.09	.09
24	2.4	3.2	4.2	2.8	2.7	30	16	7.8	2.9	.39	.09	.07
25	2.4	3.1	4.1	2.8	2.9	33	17	7.8	2.5	.34	.09	.07
26	2.0	3.2	3.8	2.6	3.0	33	16	7.1	2.4	.34	.09	.06
27	2.0	3.4	3.9	2.5	3.1	35	17	6.6	2.4	3.6	.09	.06
28	2.0	3.7	3.9	2.4	3.2	32	17	6.4	2.4	4.8	.07	.04
29	2.0	3.7	3.3	2.3	---	30	15	7.3	2.7	3.4	.06	.03
30	2.2	3.7	2.7	2.2	---	32	14	8.8	3.0	3.6	.04	.02
31	2.1	---	2.4	2.2	---	32	---	8.2	---	3.2	.04	---
TOTAL	56.9	93.6	108.8	80.3	74.2	2267.7	678	351.6	148.7	130.14	17.24	2.08
MEAN	1.84	3.12	3.51	2.59	2.65	73.2	22.6	11.3	4.96	4.20	.56	.069
MAX	2.4	4.4	4.4	2.9	3.2	230	44	16	11	56	1.8	.11
MIN	1.4	2.2	2.4	2.2	2.2	2.9	14	6.4	2.4	.22	.04	.02
AC-FT	113	186	216	159	147	4500	1340	697	295	258	34	4.1

CAL YR 1978 TOTAL 45772.80 MEAN 125 MAX 5000 MIN 1.4 AC-FT 90790
WTR YR 1979 TOTAL 4009.26 MEAN 11.0 MAX 230 MIN .02 AC-FT 7950

06326050 MIZPAH CREEK AT OLIVE, MT

LOCATION.--Lat 45°32'30", long 105°31'40", in SW¼ sec.26, T.3 S., R.50 E., Powder River County, Hydrologic Unit 10090210, at bridge on U.S. Highway 212 at Olive, approximately 1.0 mi (1.6 km) downstream from YT Creek.

DRAINAGE AREA.--129 mi^2 (334 km^2).

PERIOD OF RECORD.--Water years 1976 to September 1979 (discontinued).

REVISIONS.--The concentrations of dissolved cadmium and dissolved lead for Apr. 12, 1978 (1230 hours) were found in error and have been deleted.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPECIFIC CONDUCTANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	OXYGEN DEMAND, BIOCHEMICAL, 5 DAY (MG/L) (00310)
OCT										
18...	0730	.15	--	5180	8.0	4.0	8.0	--	--	--
NOV										
15...	0830	.26	0	5350	7.9	-12.0	.0	10.0	76	--
DEC										
27...	0800	.21	1	5200	7.5	-20.0	.0	4.5	35	--
MAR										
01...	0805	.15	2	4800	7.4	-9.0	.0	1.1	8	--
28...	0630	1.5	1	3510	7.5	-10.0	.0	4.7	36	--
APR										
11...	0800	E4.0	2	3390	8.0	.0	3.0	10.8	92	3.6
MAY										
08...	1445	.64	2	4500	7.9	9.0	11.0	7.1	73	--
JUN										
05...	0730	E.25	1	4600	7.6	24.0	18.0	3.0	38	--
JUL										
11...	0830	.01	3	5000	8.0	23.5	22.5	7.8	101	--

DATE	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	BICARBONATE (MG/L AS HCO3) (00440)	CARBONATE (MG/L AS CO3) (00445)	ALKALINITY (MG/L AS CACO3) (00410)
OCT										
18...	2200	1900	260	370	580	5.4	25	410	0	330
NOV										
15...	2100	1800	260	350	590	5.6	22	--	--	330
DEC										
27...	2000	1500	240	330	550	5.4	21	--	--	410
MAR										
01...	2000	1400	260	330	540	5.2	22	--	--	580
28...	1400	1100	230	210	340	3.9	15	--	--	340
APR										
11...	1400	1100	220	200	330	3.9	10	--	--	310
MAY										
08...	1700	1600	230	280	470	4.9	28	--	--	140
JUN										
05...	2100	1700	310	310	490	4.7	17	--	--	350
JUL										
11...	2100	1800	260	350	550	5.2	17	--	--	270

06326050 MIZPAH CREEK AT OLIVE, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	CARBON DIOXIDE DISSOLVED (MG/L AS CO2) (00405)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	BROMIDE DISSOLVED (MG/L AS BR) (71870)	IODIDE, DISSOLVED (MG/L AS I) (71865)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)
OCT										
18...	6.6	3100	25	.2	--	--	9.2	4570	6.92	2.06
NOV										
15...	--	3000	30	.2	.4	.01	5.7	[illegible]0	6.07	3.13
DEC										
27...	--	2600	27	.3	--	--	21	4040	5.49	2.29
MAR										
01...	--	2500	28	.3	.4	.01	27	4060	5.52	1.64
28...	--	1800	16	.2	.2	.01	12	2830	3.85	11.5
APR										
11...	--	1700	16	.2	.2	.00	9.4	2670	3.63	28.8
MAY										
08...	--	2500	19	.3	--	--	2.5	3610	4.91	6.24
JUN										
05...	--	2600	17	.3	--	--	6.7	3960	5.39	5.00
JUL										
11...	--	3100	15	.3	--	--	5.6	4460	6.07	.12

DATE	NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITROGEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)	PHOSPHORUS, DISSOLVED (MG/L AS P) (00666)	CARBON, ORGANIC DISSOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUSPENDED TOTAL (MG/L AS C) (00689)	BORON, DISSOLVED (UG/L AS B) (01020)	IRON, DISSOLVED (UG/L AS FE) (01046)
OCT										
18...	.00	.03	1.3	1.3	.11	.05	--	--	480	50
NOV										
15...	.01	.03	.75	.78	.08	--	13	.7	430	40
DEC										
27...	.00	.14	.66	.80	.22	--	--	--	350	380
MAR										
01...	.01	3.0	.80	3.8	.76	--	11	.7	330	140
28...	.04	1.7	.70	2.4	.17	--	11	9.8	240	400
APR										
11...	.08	.13	.87	1.0	.08	--	8.7	--	240	40
MAY										
08...	.03	.04	.84	.88	.05	--	--	--	340	30
JUN										
05...	.01	.04	.77	.81	.07	--	--	--	420	30
JUL										
11...	.05	.09	.86	.95	.17	--	--	--	420	30

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DISSOLVED (UG/L AS AS) (01000)	BERYLLIUM, TOTAL RECOVERABLE (UG/L AS BE) (01012)	BERYLLIUM, DISSOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD) (01027)	CADMIUM DISSOLVED (UG/L AS CD) (01025)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)	COPPER, DISSOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)
APR												
11...	0800	2	1	0	0	2	2	20	0	8	1	1900

DATE	LEAD, TOTAL RECOVERABLE (UG/L AS PB) (01051)	LEAD, DISSOLVED (UG/L AS PB) (01049)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOVERABLE (UG/L AS HG) (71900)	MERCURY DISSOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI) (01067)	NICKEL, DISSOLVED (UG/L AS NI) (01065)	SELENIUM, TOTAL (UG/L AS SE) (01147)	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)	ZINC, DISSOLVED (UG/L AS ZN) (01090)
APR												
11...	33	11	1200	560	.1	.0	9	4	1	1	40	20

06326050 MIZPAH CREEK AT OLIVE, MT--Continued

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPER-ATURE (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)
NOV					
15...	0830	.0	.26	21	.01
DEC					
27...	0800	.0	.21	272	.15
MAR					
01...	0805	.0	.15	10	.00
26...	0630	.0	1.5	50	.20
APR					
11...	0800	3.0	E4.0	14	.15
MAY					
08...	1445	11.0	.64	36	.06
JUN					
05...	0730	16.0	E.25	52	.04
JUL					
11...	0830	22.5	.01	44	.00

06326300 MIZPAH CREEK NEAR MIZPAH, MT

LOCATION.--Lat 46°15'39", long 105°17'34", in NW¼NE¼SW¼ sec.24, T.6 N., R.51 E., Custer County, Hydrologic Unit 10090210, on left bank 10 ft (3 m) upstream from county bridge, 1.0 mi (1.6 km) upstream from mouth, and 1.6 mi (2.6 km) northwest of Mizpah.

DRAINAGE AREA.--797 mi^2 (2,064 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1974 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 2,490 ft (759 m), from topographic map.

REMARKS.--Water-discharge records fair except those below 0.5 ft^3/s (0.014 m^3/s) and winter period, which are poor. Minor diversions for irrigation above station.

AVERAGE DISCHARGE.--5 years, 23.9 ft^3/s (0.677 m^3/s), 17,320 acre-ft/yr (21.4 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,010 ft^3/s (56.9 m^3/s) Mar. 23, 1978, gage height, 9.75 ft (2.972 m), from rating curve extended above 1,690 ft^3/s (45.3 m^3/s); maximum gage height, 10.64 ft (3.243 m) Mar. 20, 1978 (backwater from ice); no flow at times each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 150 ft^3/s (4.25 m^3/s) and maximums (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Mar. 17	0300	ice jam		*7.68	2.341	Apr. 14	2300	274	7.76	4.03	1.228
Mar. 24	1130	*580	16.4	5.45	1.661	Apr. 19	1900	302	8.55	4.18	1.274
Apr. 8	0400	163	4.62	3.37	1.027						

No flow on many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.23	.08	.00	.00	.00	.00	148	35	22	2.8	.00	.00
2	.08	.08	.00	.00	.00	.00	115	29	18	1.7	.00	.00
3	.13	.08	.00	.00	.00	.00	96	27	17	1.2	.00	.08
4	.13	.13	.00	.00	.00	.00	90	25	14	1.1	.00	.08
5	.08	.08	.00	.00	.00	.20	77	22	13	1.1	.00	.08
6	.08	.08	.00	.00	.04	.40	76	20	11	1.1	.00	.00
7	.08	.08	.00	.00	.02	.90	123	17	31	1.0	.00	.04
8	.08	.13	.00	.00	.00	1.8	151	16	25	.76	.00	.00
9	.08	.10	.00	.00	.00	4.0	139	15	26	.68	.00	.00
10	.04	.06	.02	.00	.04	9.0	149	14	16	.60	.00	.04
11	.04	.02	.04	.00	.00	20	146	14	12	.46	.00	.28
12	.23	.00	.05	.00	.00	40	150	14	11	.46	.00	.33
13	.23	.00	.03	.00	.00	90	146	14	9.6	.28	.00	.23
14	.18	.00	.02	.00	.00	200	200	15	7.6	.18	.00	.23
15	.23	.00	.04	.00	.00	380	245	14	6.8	.08	.00	.23
16	.23	.00	.02	.00	.00	400	240	14	5.5	.13	.00	.18
17	.23	.00	.00	.00	.00	440	180	13	4.3	.13	.00	.18
18	.23	.00	.00	.00	.00	410	180	12	3.8	.18	.00	.18
19	.18	.00	.00	.01	.00	380	213	12	3.0	.08	.00	.28
20	.18	.00	.00	.02	.00	360	199	11	3.3	.04	.00	.28
21	.08	.00	.00	.01	.00	340	160	12	4.0	.04	.00	.33
22	.08	.00	.01	.00	.00	310	120	11	4.6	.93	.00	.28
23	.08	.00	.02	.00	.00	294	94	32	4.9	3.3	.04	.33
24	.08	.00	.03	.00	.00	359	74	40	3.3	.68	.06	.46
25	.08	.00	.03	.00	.00	471	58	27	2.2	15	.08	.40
26	.08	.00	.02	.00	.02	249	48	14	2.0	17	.10	.34
27	.08	.00	.00	.00	.00	202	44	12	1.6	3.5	.12	.29
28	.08	.02	.00	.00	.00	170	40	11	1.6	2.4	.10	.25
29	.13	.02	.00	.00	---	150	37	11	1.4	1.5	.08	.21
30	.13	.00	.00	.00	---	175	35	35	6.1	.60	.00	.18
31	.08	---	.00	.00	---	163	---	22	---	.00	.00	---
TOTAL	3.95	.96	.33	.04	.12	5619.30	3773	580	291.6	59.01	.58	5.79
MEAN	.13	.032	.011	.001	.004	181	126	18.7	9.72	1.90	.019	.19
MAX	.23	.13	.05	.02	.04	471	245	40	31	17	.12	.46
MIN	.04	.00	.00	.00	.00	.00	35	11	1.4	.00	.00	.00
AC-FT	7.8	1.9	.7	.08	.2	11150	7480	1150	578	117	1.2	11

CAL YR 1978 TOTAL 16226.39 MEAN 44.5 MAX 1670 MIN .00 AC-FT 32190
WTR YR 1979 TOTAL 10334.68 MEAN 28.3 MAX 471 MIN .00 AC-FT 20500

06326300 MIZPAH CREEK NEAR MIZPAH, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1976 to current year.

REMARKS.--Scheduled sampling not possible during periods of no flow.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L) (00310)
OCT										
04...	1345	.12	1	1730	8.8	15.0	13.0	10.4	107	--
18...	1130	.23	--	2430	8.5	13.0	9.0	--	--	--
MAR										
15...	1545	364	0	268	7.9	9.5	.5	11.8	90	--
APR										
26...	1315	46	1	2330	8.3	8.0	12.0	12.8	129	1.6
MAY										
23...	0930	26	0	3710	8.3	13.0	14.0	9.1	95	--
JUN										
26...	1355	1.7	0	3430	8.5	27.0	26.5	8.3	112	--
JUL										
24...	1120	.63	0	1500	8.1	29.0	27.0	5.6	77	--
AUG										
29...	1230	.06	1	3690	8.9	30.0	21.0	10.2	125	--

DATE	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)
OCT										
04...	170	0	40	18	340	11	8.3	--	--	310
18...	240	0	51	27	470	13	8.9	510	26	460
MAR										
15...	31	0	7.8	2.8	45	3.5	4.5	--	--	48
APR										
26...	510	250	87	70	350	6.8	9.6	--	--	260
MAY										
23...	1100	700	110	200	600	7.9	14	--	--	400
JUN										
26...	500	44	78	75	570	11	11	--	--	460
JUL										
24...	88	0	23	7.5	310	14	7.9	--	--	230
AUG										
29...	250	0	29	43	850	23	9.5	--	--	610

DATE	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	BROMIDE DIS-SOLVED (MG/L AS BR) (71870)	IODIDE, DIS-SOLVED (MG/L AS I) (71865)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)
OCT										
04...	--	560	6.7	.5	.4	.02	6.3	1170	1.59	.38
18...	2.8	820	9.5	.6	--	--	6.1	1670	1.96	.89
MAR										
15...	--	70	16	.2	.0	.00	4.0	179	.24	176
APR										
26...	--	970	6.8	.2	.1	.00	8.1	1660	2.26	206
MAY										
23...	--	1700	16	.4	--	--	5.1	2890	3.93	203
JUN										
26...	--	1300	4.1	.4	--	--	2.4	2320	3.16	10.6
JUL										
24...	--	510	5.7	.8	--	--	11	1010	1.37	1.72
AUG										
29...	--	1400	20	.5	.1	.00	1.1	2720	3.70	.44

06326300 MIZPAH CREEK NEAR MIZPAH, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C) (00689)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
OCT										
04...	.00	.04	.89	.93	.11	--	15	1.2	280	40
18...	.32	.01	1.9	1.9	.05	.01	--	--	360	20
MAR										
15...	.42	.23	1.9	2.1	.84	--	17	14	110	70
APR										
26...	.02	.03	.97	1.0	.09	--	13	1.1	250	40
MAY										
23...	.01	.05	.40	.45	.02	--	--	--	380	10
JUN										
26...	.01	.03	.56	.59	.05	--	--	--	480	50
JUL										
24...	1.6	.07	1.6	1.7	1.9	--	--	--	290	150
AUG										
29...	.01	.03	1.1	1.1	.05	--	32	2.6	560	0

DATE	TIME	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)
APR								
26...	1315	--	2	1	[illegible]	0	0	0
AUG								
29...	1230	0	1	1	10	0	0	1

DATE	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)
APR									
26...	10	0	33	2	2400	--	0	140	20
AUG									
29...	20	10	[illegible]	4	650	5	0	100	20

DATE	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
APR								
26...	.2	.0	12	1	1	1	130	10
AUG								
29...	.0	.0	10	6	1	1	10	10

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPER-ATURE (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT						
04...	1345	13.0	.12	85	.03	--
MAR						
15...	1545	.5	364	2770	2720	95
APR						
26...	1315	12.0	46	192	24	98
MAY						
23...	0930	14.0	26	195	14	--
JUN						
26...	1355	26.5	1.7	148	.68	--
JUL						
24...	1120	27.0	.63	2060	3.5	100

06326500 POWDER RIVER NEAR LOCATE, MT

LOCATION.--Lat 46°25'48", long 105°18'34", in SW¼SW¼SE¼ sec.23, T.8 N., R.51 E., Custer County, Hydrologic Unit 10090209, on right bank at downstream side of bridge on U.S. Highway 12, 0.1 mi (0.2 km) west of Locate, and 25 mi (40 km) east of Miles City.

DRAINAGE AREA.--13,189 mi^2 (24,160 km^2). Drainage area at site used Oct. 1, 1965, to Mar. 21, 1978, 13,194 mi^2 (34,172 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1938 to current year.

REVISED RECORDS.--WSP 926: 1939. WSP 1309: 1938-39 (M). WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,384.79 ft (726.884 m) National Geodetic Vertical Datum of 1929 (level by Army Corps of Engineers). Prior to July 11, 1947, nonrecording gage at bridge 50 ft (15 m) upstream, and July 11, 1947, to Sept. 30, 1965, water-stage recorder at present site and datum. Oct. 1, 1965, to Oct. 4, 1966, nonrecording gage, and Oct. 5, 1966, to Mar. 21, 1978, water-stage recorder 1.5 mi (2.4 km) downstream at different datum.

REMARKS.--Water-discharge records good except those for winter period, which are poor, and those for July 7 to Sept. 30, which are fair. Some regulation by three reservoirs in Wyoming with combined usable capacity of 36,800 acre-ft (45.5 hm^3). Diversions for irrigation of about 74,500 acres (302 km^2) above station.

AVERAGE DISCHARGE.--41 years, 632 ft^3/s (17.90 m^3/s), 457,900 acre-ft/yr (565 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge observed, 31,000 ft^3/s (878 m^3/s) Feb. 19, 1943; maximum gage height, 12.27 ft (3.740 m) Mar. 16, 1978 (backwater from ice); no flow Jan. 16 to Feb. 12, Feb. 22-24, 1950, July 27, Sept. 21-27, Oct. 1, 1960, Sept. 4-8, 1961.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, about 5,500 ft^3/s (156 m^3/s) Mar. 18, only peak above base of 5,000 ft^3/s (142 m^3/s); maximum gage height, 6.91 ft (2.106 m) Mar. 18 (backwater from ice jam); minimum daily discharge, 62 ft^3/s (1.76 m^3/s) Nov. 21, result of freezeup.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	318	304	110	76	90	120	1220	702	1200	396	579	396
2	304	304	100	82	110	120	1110	670	1140	401	702	424
3	299	318	100	78	130	110	1060	646	955	374	472	390
4	281	338	130	72	150	110	996	609	868	338	374	348
5	281	338	110	70	170	110	868	587	769	328	318	308
6	277	328	90	100	170	120	822	609	678	332	277	294
7	277	328	110	150	150	130	965	651	735	304	251	277
8	277	323	150	145	120	140	1110	694	670	272	231	216
9	281	310	150	140	120	150	1350	752	594	353	227	198
10	281	250	180	140	120	160	1240	813	572	374	209	191
11	286	200	200	140	120	170	1190	840	572	268	153	188
12	308	150	210	140	120	180	1240	965	551	239	133	220
13	308	110	220	150	110	200	1220	840	538	227	125	159
14	290	72	220	150	100	250	1320	752	531	243	115	136
15	290	74	220	150	95	300	1440	726	517	212	120	125
16	290	76	200	160	90	700	1440	776	498	195	120	123
17	294	82	180	170	120	1800	1340	760	472	178	113	120
18	294	84	160	170	130	4800	1340	726	436	162	110	118
19	294	76	190	180	140	5020	1470	616	412	159	116	113
20	299	66	210	180	130	3660	1340	551	1080	136	165	108
21	308	62	200	170	115	2980	1070	517	822	131	220	104
22	308	74	210	150	100	3000	965	702	616	115	235	95
23	308	82	220	130	96	3280	897	769	609	120	235	86
24	308	96	220	125	90	2850	822	702	631	101	260	84
25	308	110	190	120	120	3340	813	670	558	115	277	84
26	308	120	160	110	130	2350	786	594	517	147	332	73
27	308	140	140	100	120	1550	735	579	478	113	454	82
28	308	130	120	95	120	1230	710	565	472	106	448	86
29	304	120	100	90	---	1110	654	694	448	93	418	80
30	304	110	84	84	---	1200	662	726	436	110	401	88
31	304	---	70	80	---	1300	---	813	---	407	396	---
TOTAL	9205	5175	4954	3897	3376	42540	32195	21598	19375	7049	8566	5314
MEAN	297	173	160	126	121	1372	1073	697	646	227	277	177
MAX	318	338	220	180	170	5020	1470	965	1200	407	702	424
MIN	277	62	70	70	90	110	654	517	412	93	110	73
AC-FT	18260	10260	9830	7730	6700	84380	63860	42840	38430	13980	17030	10540

CAL YR 1978 TOTAL 541482 MEAN 1484 MAX 22200 MIN 62 AC-FT 1074000
WTR YR 1979 TOTAL 163266 MEAN 447 MAX 5020 MIN 62 AC-FT 323800

06326500 POWDER RIVER NEAR LOCATE, MT--Continued
(National Stream Quality Accounting Network)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1951-63, 1975 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: January 1951 to July 1963, October 1974 to current year.
WATER TEMPERATURES: December 1950 to July 1963, October 1974 to current year.
SUSPENDED-SEDIMENT DISCHARGE: March 1950 to September 1953, October 1974 to September 1977, March 1978 to current year.
INSTRUMENTATION: Temperature recorder November 1978 to June 1979.

REMARKS: Sediment loads estimated Jan. 27 to Mar. 16. Flow affected by ice during most of winter months.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 9,270 micromhos Dec. 16, 1955; minimum daily, 231 micromhos July 18, 1963.
WATER TEMPERATURES: Maximum daily, 30.0°C July 26, 1959; minimum daily, 0.0°C on many days during winter periods.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 60,000 mg/L Aug. 6, 1953; minimum daily mean, 17 mg/L Dec. 3, 1974.
SEDIMENT LOADS: Maximum daily, 1,020,000 tons (925,000 megagrams) May 26, 1952; minimum daily, less than 1 ton (.91 megagram) on several days during September 1950.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily observed, 3,180 micromhos Jan. 18; minimum daily observed, 969 micromhos Mar. 18.
WATER TEMPERATURES: Maximum daily, 27.5°C June 12, 13; minimum, 0.0°C on many days during November to March.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 24,900 mg/L Aug. 2; minimum daily mean, 101 mg/L Sept. 29.
SEDIMENT LOADS: Maximum daily, 47,200 tons (42,800 megagrams) Aug. 2; minimum daily, 22 tons (20 megagrams) Sept. 29.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE (DEG C) (00010)	TURBIDITY (NTU) (00076)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)
OCT										
04...	0915	264	1	2580	8.3	12.0	9.0	32	10.2	96
NOV										
08...	0930	323	1	2330	8.4	18.5	6.0	38	11.0	97
DEC										
20...	1015	208	1	2720	7.8	-15.0	.0	40	9.0	67
JAN										
24...	1030	124	1	2950	7.9	-6.0	.0	32	4.6	35
FEB										
08...	1230	120	0	2800	7.8	-13.0	.0	23	4.9	40
MAR										
22...	1600	3140	2	1800	8.2	6.0	2.0	2100	11.9	93
APR										
24...	1015	835	2	2950	8.2	6.0	8.0	720	10.4	96
MAY										
22...	1000	632	0	2880	8.2	15.0	14.0	1800	9.0	94
JUN										
26...	0915	514	1	1890	8.1	21.0	19.5	1500	8.0	94
JUL										
24...	0815	104	0	2470	8.4	20.0	21.0	240	7.6	93
AUG										
28...	1030	433	1	2040	8.3	21.5	19.0	2200	7.7	90

06326500 POWDER RIVER NEAR LOCATE, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)
OCT										
04...	70	130	700	490	160	74	340	5.6	6.8	210
NOV										
08...	K8	33	600	380	130	67	290	5.2	6.3	220
DEC										
20...	K2	27	800	450	180	85	370	5.7	8.3	350
JAN										
24...	K2	K15	840	460	200	83	400	6.0	10	380
FEB										
08...	K2	22	760	390	180	76	360	5.7	6.1	370
MAR										
22...	K32	6200	400	270	97	39	200	4.3	6.0	130
APR										
24...	K51	200	760	530	170	82	410	6.5	8.0	230
MAY										
22...	K130	460	710	490	160	75	400	6.5	21	220
JUN										
26...	510	180	560	420	140	57	210	3.8	7.3	160
JUL										
24...	K760	950	620	380	140	65	360	6.3	10	240
AUG										
28...	4400	6000	550	370	130	55	260	4.8	7.3	180

DATE	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)
OCT									
04...	900	210	.5	8.6	1930	1830	2.62	1380	.31
NOV									
08...	730	150	.4	7.9	1580	1510	2.15	1380	.02
DEC									
20...	930	170	.4	12	1970	1970	2.68	1110	.33
JAN									
24...	960	220	.4	13	2160	2140	2.94	723	.34
FEB									
08...	870	210	.3	13	2060	1940	2.80	667	.38
MAR									
22...	560	69	.3	6.0	1310	1060	1.78	11100	.52
APR									
24...	1200	110	.6	7.9	2260	2130	3.07	5100	.41
MAY									
22...	1200	110	.6	8.2	2170	2110	2.95	3700	.54
JUN									
26...	720	72	.5	8.1	1440	1310	1.96	2000	.35
JUL									
24...	960	110	.4	14	1850	1800	2.52	519	.02
AUG									
28...	680	120	.4	7.4	1360	1370	1.85	1590	.34

06326500 POWDER RIVER NEAR LOCATE, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITROGEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITROGEN, KJELDAHL, TOTAL (MG/L AS N) (00625)	NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)	PHOSPHORUS, DISSOLVED (MG/L AS P) (00666)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CARBON, ORGANIC DISSOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUSPENDED TOTAL (MG/L AS C) (00689)
OCT 04...	.06	2.3	2.4	.91	.01	.01	--	8.3	>5.0
NOV 08...	.04	1.2	1.2	.35	.23	.01	22	--	--
DEC 20...	.05	1.1	1.1	.66	.02	.02	5.7	--	--
JAN 24...	.14	.39	.53	.44	.03	.01	--	7.3	.6
FEB 08...	.12	.34	.46	.40	.01	.00	5.5	--	--
MAR 22...	.11	3.4	3.5	.98	1.3	.03	--	7.2	>8.0
APR 24...	.19	9.8	10	--	1.1	.02	23	--	--
MAY 22...	.08	.30	.38	--	.11	.02	31	--	--
JUN 26...	.06	3.7	3.8	.32	2.1	.00	31	--	--
JUL 24...	.01	.61	.62	.47	.20	.02	--	27	1.6
AUG 28...	.15	9.1	9.2	.60	2.5	.68	79	--	--

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DISSOLVED (UG/L AS AS) (01000)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA) (01007)	BARIUM, DISSOLVED (UG/L AS BA) (01005)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD) (01027)	CADMIUM DISSOLVED (UG/L AS CD) (01025)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)
OCT 04...	0915	6	1	100	0	--	3	30	0
JAN 24...	1030	1	1	200	100	1	1	10	0
MAR 22...	1600	12	1	400	0	0	0	30	0
JUL 24...	0815	2	1	100	100	1	1	20	10

DATE	COBALT, TOTAL RECOVERABLE (UG/L AS CO) (01037)	COBALT, DISSOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)	COPPER, DISSOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)	IRON, DISSOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOVERABLE (UG/L AS PB) (01051)	LEAD, DISSOLVED (UG/L AS PB) (01049)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)
OCT 04...	11	0	33	4	35000	50	--	--	530
JAN 24...	2	2	8	2	920	20	5	2	60
MAR 22...	15	1	40	2	14000	100	36	0	1400
JUL 24...	6	0	45	6	6500	10	14	0	190

DATE	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOVERABLE (UG/L AS HG) (71900)	MERCURY DISSOLVED (UG/L AS HG) (71890)	SELENIUM, TOTAL (UG/L AS SE) (01147)	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	SILVER, TOTAL RECOVERABLE (UG/L AS AG) (01077)	SILVER, DISSOLVED (UG/L AS AG) (01075)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)	ZINC, DISSOLVED (UG/L AS ZN) (01090)
OCT 04...	20	.0	.0	3	3	0	0	130	10
JAN 24...	50	.0	.0	1	1	1	0	60	30
MAR 22...	20	.0	.0	5	2	0	0	190	20
JUL 24...	0	.1	.1	1	1	0	0	100	20

06326500 POWDER RIVER NEAR LOCATE, MT--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2720	2230	2630	---	---	---	2030	2900	1640	2030	2920	2150
2	2590	2260	2670	---	---	---	2210	2880	1500	2030	2570	2010
3	2580	2260	2770	---	---	---	2410	2870	1320	1980	2250	1890
4	2570	2250	2760	---	---	---	2460	2850	1490	2020	2340	1820
5	2550	2300	---	---	---	---	2520	2740	1490	2050	2500	1930
6	2510	---	2660	2840	---	---	2660	2630	1620	2100	2380	1950
7	2460	2160	2700	---	---	---	2580	2630	1650	2260	2200	1970
8	2430	2120	---	---	2780	---	2270	2660	1660	2300	2280	1890
9	2420	---	2730	3050	2780	---	2260	2630	1750	2310	2240	1970
10	2360	---	2620	3100	2730	---	2360	2580	1870	2260	2270	---
11	2320	---	2520	3120	2640	---	2160	2440	1850	2180	2310	2060
12	2270	---	2450	---	---	---	---	2560	1860	2080	2420	1810
13	2250	---	2420	---	---	---	2290	2640	1900	2020	2580	1800
14	2300	---	2450	---	---	---	2230	2700	1950	2010	2640	2140
15	2330	2630	2470	---	---	---	2080	2590	1930	2100	2730	2350
16	2330	2740	2480	3160	---	---	2120	2380	1890	2070	2810	2380
17	2320	2680	2550	3160	---	1040	2410	2290	1900	2140	2980	2410
18	---	---	2620	3160	---	969	2460	2390	1990	2270	2960	2430
19	2300	---	2650	3130	---	1160	---	2580	2010	2310	2920	2500
20	---	2650	2670	3100	---	1450	2360	2790	2050	2360	2860	2510
21	---	---	2670	3110	---	1630	2430	2840	1930	2360	2710	2520
22	2270	2680	2680	---	---	1580	2610	2860	1920	2400	2420	2570
23	2270	2740	2670	---	---	1580	2790	2850	2350	2350	2140	2560
24	2270	2700	2690	2810	---	1550	2860	2810	2230	2440	2080	2560
25	2250	2530	2660	---	---	1460	2890	2560	2050	2100	2600	---
26	2260	2620	2690	2670	---	1510	2930	2260	1890	1440	2180	2600
27	2270	2580	2690	---	---	1780	2930	2100	1710	2350	1740	2660
28	2290	---	2700	---	---	2000	2900	2100	1900	2380	2060	2610
29	2300	2570	2670	---	---	2030	2860	2070	2050	2410	2200	2650
30	2310	2570	---	---	---	2030	2830	2000	2100	2470	2230	2680
31	2330	---	---	---	---	2050	---	1820	---	2500	2360	---
MEAN	2370	2490	2630	3040	2730	1590	2500	2550	1850	2200	2430	2260

WTR YR 1979 MEAN 2350 MAX 3180 MIN 969

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13.5	2.0				---	2.5			20.5	25.0	18.0
2	11.5	3.5				---	6.0			21.0	20.5	19.5
3	7.0	4.5				---	4.0			21.5	25.0	19.0
4	9.0	6.5				---	5.0			23.5	22.0	18.5
5	7.0	2.5				---	.5			19.5	21.5	19.5
6	5.5	---				.0	.5			22.0	26.0	16.0
7	8.5	6.0				.0	7.5			22.5	21.5	19.0
8	8.5	---				.0	3.0			24.0	22.0	19.0
9	7.5	---				.0	7.0			20.5	21.5	21.5
10	8.5	---				.0	9.0			21.5	19.5	---
11	10.5	---				.0	8.0			22.5	18.5	12.0
12	9.5	---				.0	---			21.0	21.5	14.5
13	6.0	---				.0	3.5			20.0	17.5	11.0
14	4.0	---				.0	5.5			16.5	14.0	11.0
15	5.5	---				.0	8.0			16.5	16.0	11.0
16	6.0	---				.0	10.0			18.5	18.5	16.0
17	9.0	---				1.5	13.0			19.0	21.5	16.0
18	---	---				3.5	14.0			25.5	18.0	12.0
19	7.5	---				2.5	---			21.0	20.0	16.0
20	---	---				6.5	9.5			26.0	19.0	14.0
21	---	---				4.5	11.0			24.0	19.5	12.5
22	5.0	---				3.0	13.5			25.5	19.0	14.0
23	4.0	---				3.5	11.5			25.0	24.5	14.0
24	6.0	---				1.5	9.0			27.0	21.0	14.0
25	5.5	---				3.5	8.0			22.0	19.0	---
26	3.5	---				.5	---			19.0	18.0	16.5
27	3.0	---				2.5	---			23.5	18.0	20.5
28	4.5	---				3.0	---			21.5	19.5	13.0
29	4.5	---				4.5	---			24.5	17.0	15.0
30	5.0	---				5.0	---			22.0	25.0	13.5
31	2.0	---				7.0	---			24.5	26.0	---
MEAN	6.5	---				2.0	7.5			22.0	20.5	15.5

WTR YR 1979 MEAN 13.0 MAX 27.0 MIN .0

06326500 POWDER RIVER NEAR LOCATE, MT--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1				---	---	---	.0	.0	.0	.0	.0	.0
2				---	---	---	.0	.0	.0	.0	.0	.0
3				---	---	---	.0	.0	.0	.0	.0	.0
4				---	---	---	.0	.0	.0	.0	.0	.0
5				---	---	---	.0	.0	.0	.0	.0	.0
6				---	---	---	.0	.0	.0	.0	.0	.0
7				---	---	---	.0	.0	.0	.0	.0	.0
8				7.5	---	---	.0	.0	.0	.0	.0	.0
9				5.5	.0	2.5	.0	.0	.0	.0	.0	.0
10				.0	.0	.0	.0	.0	.0	.0	.0	.0
11				.0	.0	.0	.0	.0	.0	.0	.0	.0
12				.0	.0	.0	.0	.0	.0	.0	.0	.0
13				.0	.0	.0	.0	.0	.0	.0	.0	.0
14				.0	.0	.0	.0	.0	.0	.0	.0	.0
15				.0	.0	.0	.0	.0	.0	.0	.0	.0
16				.0	.0	.0	.0	.0	.0	.0	.0	.0
17				.0	.0	.0	.0	.0	.0	.0	.0	.0
18				.0	.0	.0	.0	.0	.0	.0	.0	.0
19				.0	.0	.0	.0	.0	.0	.0	.0	.0
20				.0	.0	.0	.0	.0	.0	.0	.0	.0
21				.0	.0	.0	.0	.0	.0	.0	.0	.0
22				.0	.0	.0	.0	.0	.0	.0	.0	.0
23				.0	.0	.0	.0	.0	.0	.0	.0	.0
24				.0	.0	.0	.0	.0	.0	.0	.0	.0
25				.0	.0	.0	.0	.0	.0	.0	.0	.0
26				.0	.0	.0	.0	.0	.0	.0	.0	.0
27				.0	.0	.0	.0	.0	.0	.0	.0	.0
28				.0	.0	.0	.0	.0	.0	.0	.0	.0
29				.0	.0	.0	.0	.0	.0	.0	.0	.0
30				.0	.0	.0	.0	.0	.0	.0	.0	.0
31				---	---	---	.0	.0	.0	.0	.0	.0
MONTH				7.5	.0	.0	.0	.0	.0	.0	.0	.0
		FEBRUARY			MARCH			APRIL			MAY	
1	.0	.0	.0	.0	.0	.0	---	---	---	14.0	10.0	11.5
2	.0	.0	.0	.0	.0	.0	---	---	---	14.5	8.5	11.5
3	.0	.0	.0	.0	.0	.0	---	---	---	15.0	9.5	11.5
4	.0	.0	.0	.0	.0	.0	---	---	---	13.0	9.0	11.0
5	.0	.0	.0	.0	.0	.0	---	---	---	16.0	11.5	13.5
6	.0	.0	.0	---	---	---	---	---	---	15.0	11.0	13.0
7	.0	.0	.0	---	---	---	---	---	---	11.0	8.0	9.5
8	.0	.0	.0	---	---	---	---	---	---	9.0	7.0	8.5
9	.0	.0	.0	---	---	---	---	---	---	9.5	6.5	8.0
10	.0	.0	.0	---	---	---	---	---	---	10.0	5.0	7.5
11	.0	.0	.0	---	---	---	---	---	---	9.5	6.5	8.0
12	.0	.0	.0	---	---	---	---	---	---	13.0	7.0	10.0
13	.0	.0	.0	---	---	---	---	---	---	13.5	10.5	12.0
14	.0	.0	.0	---	---	---	---	---	---	16.5	10.0	13.5
15	.0	.0	.0	---	---	---	---	---	---	19.0	12.5	16.0
16	.0	.0	.0	---	---	---	---	---	---	21.5	16.0	18.5
17	.0	.0	.0	---	---	---	---	---	---	17.5	14.5	16.0
18	.0	.0	.0	---	---	---	---	---	---	17.5	13.0	15.0
19	.0	.0	.0	---	---	---	---	---	---	15.5	13.0	14.0
20	.0	.0	.0	---	---	---	---	---	---	18.5	10.5	14.5
21	.0	.0	.0	---	---	---	---	---	---	18.5	12.5	15.5
22	.0	.0	.0	---	---	---	---	---	---	18.0	13.5	15.5
23	.0	.0	.0	---	---	---	---	---	---	20.0	13.5	17.0
24	.0	.0	.0	---	---	---	---	---	---	21.5	15.5	18.5
25	.0	.0	.0	---	---	---	---	---	---	22.0	18.5	20.0
26	.0	.0	.0	---	---	---	---	---	---	24.5	17.5	20.5
27	.0	.0	.0	---	---	---	13.0	---	---	24.5	18.5	21.5
28	.0	.0	.0	---	---	---	11.0	8.0	10.0	21.0	15.5	18.5
29	---	---	---	---	---	---	11.5	6.5	9.0	15.0	13.0	14.0
30	---	---	---	---	---	---	14.5	7.5	11.0	16.5	12.0	14.5
31	---	---	---	---	---	---	---	---	---	16.0	13.5	14.5
MONTH	.0	.0	.0	.0	.0	.0	14.5	6.5	10.0	24.5	5.0	14.0

06326500 POWDER RIVER NEAR LOCATE, MT--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	18.5	13.0	15.5									
2	20.5	15.0	18.0									
3	22.5	17.5	20.0									
4	23.5	18.0	21.0									
5	23.5	20.0	21.5									
6	21.0	17.5	19.5									
7	17.5	14.0	16.0									
8	18.0	12.0	15.0									
9	20.0	14.5	17.0									
10	22.5	14.5	18.5									
11	25.5	18.5	22.0									
12	27.5	20.0	24.0									
13	27.5	21.5	24.5									
14	23.0	19.0	20.5									
15	24.0	18.0	21.0									
16	22.5	17.0	20.0									
17	22.0	17.5	19.5									
18	18.5	15.5	17.0									
19	19.0	15.5	17.0									
20	20.5	15.0	17.5									
21	21.0	16.5	19.0									
22	23.0	18.0	20.5									
23	24.0	18.0	21.0									
24	25.5	19.5	22.5									
25	23.5	20.5	22.0									
26	25.0	19.0	22.0									
27	23.5	19.5	21.5									
28	25.5	19.5	22.0									
29	27.0	20.0	23.5									
30	26.5	21.5	---									
31	---	---	---									
MONTH	27.5	12.0	20.0									
YEAR	27.5	.0	6.0									

06326500 POWDER RIVER NEAR LOCATE, MT--Continued

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	1390	1190	520	427	276	82	165	34		32	---	32
2	1740	1430	473	388	260	70	161	36		39	---	32
3	2010	1620	472	405	236	64	160	34		46	---	30
4	1560	1180	538	491	244	86	158	31		53	---	30
5	1170	888	790	721	229	68	154	29		60	---	33
6	1020	763	820	726	235	57	148	40		64	---	39
7	840	628	670	593	291	86	146	59		49	---	46
8	777	581	629	549	292	118	149	58		32	---	53
9	700	531	647	542	271	110	157	59		32	---	65
10	655	497	703	475	258	125	190	72		32	---	78
11	664	513	576	311	238	129	231	87		32	---	92
12	600	499	400	162	191	108	248	94		32	---	194
13	583	485	266	79	172	102	236	96		30	---	324
14	547	428	241	47	175	104	198	80		27	---	540
15	578	453	281	56	150	89	137	55		26	---	810
16	513	402	327	67	147	79	108	47		24	---	2840
17	504	400	320	71	152	74	163	75		32	2030	9870
18	499	396	299	68	191	83	143	66		35	2480	32100
19	481	382	291	60	169	87	174	85		38	2300	31200
20	440	355	250	45	156	88	178	87		35	1890	18700
21	382	318	200	33	172	93	320	147		31	1920	15400
22	389	323	193	39	137	78	333	135		27	2790	22600
23	439	365	239	53	127	75	248	87		26	3600	31900
24	355	295	262	68	139	83	149	50		24	4210	32400
25	362	301	220	65	149	76	126	41		32	5200	46900
26	483	402	300	97	143	62	132	39		35	4590	29100
27	570	474	262	99	158	60	---	35		32	2490	10400
28	431	358	304	107	146	47	---	33		32	1900	6310
29	431	354	295	96	151	41	---	32		---	1930	5780
30	643	528	272	81	169	38	---	29		---	1850	5990
31	805	661	---	---	170	32	---	28		---	1740	6110
TOTAL	---	18000	---	7021	---	2494	---	1880		989	---	309998
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	1420	4680	1100	2080	3670	11900	1170	1250	22700	35500	10300	11000
2	1270	3810	1090	1970	3020	9300	1070	1160	24900	47200	8430	9650
3	1370	3920	1050	1830	2290	5900	1220	1230	20100	25600	5100	5370
4	1470	3950	980	1610	1580	3700	750	684	15600	15800	3480	3270
5	1510	3540	930	1470	1310	2720	585	518	14600	12500	3100	2580
6	1880	4170	870	1430	1630	2980	570	511	9700	7250	2280	1810
7	1890	4920	880	1500	1330	2640	485	398	5200	3520	1690	1260
8	2140	6410	950	1780	2260	4090	470	345	2600	1620	1210	706
9	2100	7650	1160	2360	1840	2950	691	659	1400	858	890	476
10	2250	7530	1570	3450	1050	1620	830	838	800	451	690	356
11	1480	4760	1910	4330	820	1270	720	521	532	220	1290	655
12	1160	3880	2710	7060	757	1130	605	390	400	144	6750	4010
13	1350	4450	3570	8100	665	966	666	408	304	103	5190	2230
14	2850	10200	3330	6760	656	941	481	316	360	112	1080	397
15	2860	11100	2940	5760	567	791	361	207	330	107	431	145
16	1880	7310	2400	5040	569	765	313	165	362	117	316	105
17	1800	6510	2110	4330	685	873	246	118	223	68	250	81
18	1820	6580	1920	3760	502	591	212	93	220	65	211	67
19	2520	10000	1800	2990	456	507	189	81	246	78	198	60
20	2190	7920	1950	2900	2210	6770	167	61	470	209	199	58
21	1320	3810	2310	3220	7010	14800	138	49	881	523	171	48
22	1280	3340	2960	5610	14400	24000	198	61	820	520	151	39
23	1470	3560	3250	6750	11200	18400	475	154	713	452	143	33
24	1740	3860	2910	5520	8120	13800	482	131	740	519	136	31
25	1730	3800	2650	4790	4400	6630	1950	605	765	572	136	31
26	1710	3630	2390	3830	2950	4120	13400	5320	1310	1170	137	27
27	1500	2980	2140	3350	2350	3030	1800	549	4500	5520	118	26
28	1380	2650	1820	2780	1950	2490	502	144	6500	7860	121	28
29	1180	2080	1770	3320	1570	1900	438	110	6200	7000	101	22
30	1070	1910	1940	3800	1330	1570	285	85	11200	12100	110	26
31	---	---	2340	5140	---	---	9300	10200	13500	14400	---	---
TOTAL	---	154910	---	118620	---	153144	---	27361	---	202156	---	44597

TOTAL LOAD FOR YEAR: 1041172 TONS.

06326500 POWDER RIVER NEAR LOCATE, MT--Continued

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPERATURE (DEG C) (00010)	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70340)
OCT							
04...	0915	9.0	264	1560	1110	--	--
NOV							
08...	0930	6.0	323	476	415	--	--
DEC							
20...	1015	.0	208	151	85	--	--
JAN							
24...	1030	.0	124	123	41	--	--
FEB							
08...	1230	.0	120	111	36	--	--
APR							
24...	1015	8.0	835	1980	4460	--	--
MAY							
22...	1000	14.0	632	2690	4590	75	94
JUN							
26...	0915	19.5	514	3060	4250	71	91
JUL							
24...	0815	21.0	104	504	142	--	--
AUG							
28...	1030	19.0	433	7890	9220	59	75

DATE	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)	SED. SUSP. FALL DIAM. % FINER THAN .125 MM (70343)	SED. SUSP. FALL DIAM. % FINER THAN .250 MM (70344)	SED. SUSP. FALL DIAM. % FINER THAN .500 MM (70345)	SED. SUSP. FALL DIAM. % FINER THAN 1.00 MM (70346)	SED. SUSP. FALL DIAM. % FINER THAN 2.00 MM (70347)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT							
04...	--	--	--	--	--	--	95
NOV							
08...	--	--	--	--	--	--	81
DEC							
20...	--	--	--	--	--	--	93
JAN							
24...	--	--	--	--	--	--	92
FEB							
08...	--	--	--	--	--	--	82
APR							
24...	--	--	--	--	--	--	84
MAY							
22...	97	98	100	--	--	--	--
JUN							
26...	96	97	100	--	--	--	--
JUL							
24...	--	--	--	--	--	--	97
AUG							
28...	75	75	77	89	99	100	--

06326500 POWDER RIVER NEAR LOCATE, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	BAROMETRIC PRESSURE (MM OF HG) (00025)	WEATHER (WMO CODE NUMBER) (00041)
AUG									
28...	0600	2140	8.4	18.5	18.5	7.6	89	693	1
28...	0700	2080	8.4	18.0	18.5	7.4	86	694	1
28...	0800	2050	8.4	19.0	18.5	7.6	88	694	1
28...	0900	2050	8.3	19.5	18.5	7.6	88	694	1
28...	1000	2040	8.3	21.5	19.0	7.7	90	694	1
28...	1030	2040	8.3	21.5	19.0	7.7	90	--	1
28...	1100	--	--	--	19.5	7.5	89	694	--
28...	1200	2030	8.3	25.5	20.5	7.6	92	694	0
28...	1300	--	--	--	21.0	7.6	93	693	--
28...	1400	--	--	--	22.0	7.5	94	--	--
28...	1500	--	--	--	22.0	7.2	90	--	--
28...	1600	2040	8.3	30.0	22.5	7.2	91	693	1
28...	1700	--	--	--	22.0	7.1	89	--	--
28...	1800	2020	8.3	29.5	22.0	7.0	87	693	1
28...	1900	--	--	--	22.0	7.1	89	--	--
28...	2000	2020	8.3	28.5	21.5	7.2	89	693	1
28...	2100	--	--	--	21.0	7.2	88	--	--
28...	2200	--	--	--	20.5	7.3	88	--	--
28...	2300	--	--	--	20.0	7.3	86	--	--
28...	2400	--	--	--	19.5	7.2	86	--	--
29...	0100	--	--	--	19.5	7.3	87	--	--
29...	0200	--	--	--	19.0	7.4	87	--	--
29...	0300	--	--	--	18.5	7.4	86	--	--
29...	0400	--	--	--	18.0	7.5	86	--	--
29...	0500	--	--	--	18.0	7.6	87	--	--
29...	0600	2290	8.3	12.5	17.5	7.7	88	695	1

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

PERIPHYTON

DATE	TIME	LENGTH OF EXPOSURE (DAYS) (00022)	PERIPHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M (00573)	PERIPHYTON BIOMASS ASH WEIGHT G/SQ M (00572)	CHLOR-A PERIPHYTON CHROMOGRAPHIC FLUOROM (MG/M2) (70957)	CHLOR-B PERIPHYTON CHROMOGRAPHIC FLUOROM (MG/M2) (70958)	BIOMASS CHLOROPHYLL RATIO PERIPHYTON (UNITS) (70950)
NOV							
08...	0930	55	23.5	21.5	1.46	.000	1370
MAY							
22...	1000	28	.390	.240	.080	.000	1875
JUL							
24...	0815	28	13.9	12.7	.090	.000	13330

06326500 POWDER RIVER NEAR LOCATE, MT--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

PHYTOPLANKTON

DATE TIME	NOV 8,78 0930	MAR 22,79 1600	MAY 22,79 1000	JUN 26,79 0915	JUL 24,79 0815
TOTAL CELLS/ML	330	1000	1000	0	1200
DIVERSITY: DIVISION	0.7	0.8	0.0	0.0	0.5
.CLASS	0.7	0.8	0.0	0.0	0.5
..ORDER	0.7	0.8	0.0	0.0	0.5
...FAMILY	0.7	2.0	0.0	0.0	1.4
....GENUS	0.7	2.0	0.0	0.0	1.4

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)										
.CHLOROPHYCEAE										
..CHLOROCOCCALES										
...CHARACIACEAE										
....SCHROEDERIA	--	-	--	-	--	-	--	-	390#	33
...OOCYSTACEAE										
....ANKISTRODESMUS	--	-	--	-	--	-	--	-	650#	56
...SCENEDESMACEAE										
....SCENEDESMUS	290#	87	--	-	--	-	--	-	--	-
CHRYSOPHYTA										
.BACILLARIOPHYCEAE										
..PENNALES										
...CYMBELLACEAE										
....CYMBELLA	--	-	260#	25	--	-	--	-	--	-
...FRAGILARIACEAE										
....FRAGILARIA	29	9	--	-	--	-	--	-	--	-
...NAVICULACEAE										
....NAVICULA	--	-	260#	25	--	-	--	-	--	-
...NITZSCHIACEAE										
....NITZSCHIA	--	-	260#	25	--	-	--	-	130	11
CYANOPHYTA (BLUE-GREEN ALGAE)										
.CYANOPHYCEAE										
..CHROOCOCCALES										
...CHROOCOCCACEAE										
....ANACYSTIS	--	-	--	-	1000#	100	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)										
.EUGLENOPHYCEAE										
..EUGLENALES										
...EUGLENACEAE										
....TRACHELOMONAS	14	4	260#	25	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

06326530 YELLOWSTONE RIVER NEAR TERRY, MT

LOCATION.--Lat 46°48'17", long 105°17'36", in SE¼SW¼ sec.10, T.12 N., R.51 E., Prairie County, Hydrologic Unit 10100004, at bridge on county road, 1.2 mi (1.9 km) northeast of Terry, 11.8 mi (19.0 km) downstream from Powder River, and at mile 134.8 (216.9 km).

DRAINAGE AREA.--63,447 mi² (164,328 km²).

PERIOD OF RECORD.--Water years 1974 to current year.

REMARKS.--The water discharge is measured or computed by adding the discharge of Yellowstone River at Miles City (station 06309000) to that of Powder River near Locate (station 06326500). Some regulation by reservoirs on tributary streams and diversions for irrigation.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)
OCT 05...	1130	11800	1	736	8.6	8.5	11.0	10.0	97	240	90	58
NOV 07...	1400	10800	1	829	8.6	22.0	8.0	11.2	103	270	110	66
DEC 04...	1000	8530	2	940	8.4	1.0	.0	13.4	101	280	110	66
JAN 05...	1400	5870	2	1100	8.1	-18.0	.0	13.2	97	350	140	80
FEB 08...	1000	6720	0	967	8.0	-21.0	.0	12.0	87	340	150	83
MAR 07...	1000	9530	3	950	8.0	4.0	.0	11.3	84	310	140	76
APR 12...	1430	15300	76	1240	8.3	1.0	4.5	11.2	94	360	180	82
MAY 10...	1330	14900	2	950	8.4	13.0	9.0	10.5	98	290	130	66
JUN 14...	1300	22100	10	500	8.4	22.0	20.5	7.9	95	150	57	37
JUL 06...	0800	22600	3	372	8.3	24.0	22.0	7.8	95	110	33	27
AUG 16...	1130	9020	10	780	8.6	35.0	21.0	8.5	102	260	99	61
SEP 11...	1300	6700	1	710	8.6	23.0	23.5	8.8	111	230	84	51

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)
OCT 05...	23	65	1.8	3.2	150	190	13	.5	9.6	453
NOV 07...	26	74	2.0	3.7	160	240	24	.4	9.0	539
DEC 04...	28	77	2.0	4.3	170	270	17	.4	12	577
JAN 05...	36	100	2.3	5.2	210	340	22	.3	14	724
FEB 08...	32	87	2.1	4.0	190	300	19	.4	15	655
MAR 07...	29	78	1.9	4.0	170	280	22	.5	12	604
APR 12...	38	120	2.7	4.2	180	410	16	.4	8.5	787
MAY 10...	30	90	2.3	3.7	160	290	19	.4	9.1	605
JUN 14...	15	39	1.4	2.6	97	140	7.5	.3	10	310
JUL 06...	11	29	1.2	2.1	80	88	5.7	.3	11	262
AUG 16...	26	73	2.0	4.3	160	240	16	.4	8.9	526
SEP 11...	26	65	1.8	3.9	150	230	12	.4	6.7	485

06326530 YELLOWSTONE RIVER NEAR TERRY, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C) (00689)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
OCT 05...	.62	14400	.11	.02	.59	.61	.06	3.1	.6	160	40
NOV 07...	.73	15700	.16	.01	.27	.28	.02	--	--	150	10
DEC 04...	.76	13300	.44	.02	.33	.35	.00	--	--	190	0
JAN 05...	.98	11500	.49	.02	.54	.56	.04	--	.2	230	10
FEB 08...	.89	11900	.60	.08	.22	.30	.02	--	--	190	10
MAR 07...	.82	15500	.52	.10	.44	.54	.05	--	--	190	0
APR 12...	1.07	32500	.25	.03	.90	.93	.02	5.2	19	150	0
MAY 10...	.82	24300	.20	.01	.58	.59	.06	--	--	170	10
JUN 14...	.42	18500	.13	.00	.56	.56	.09	--	--	20	10
JUL 06...	.36	16000	.13	.05	.16	.21	.09	2.4	.5	50	30
AUG 16...	.72	12800	.15	.29	.10	.39	.03	--	--	150	0
SEP 11...	.66	8770	.03	.02	.68	.70	.02	3.0	.3	160	10

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)
JUL 06...	0800	5	4	0	<1	0	<1	10	10	15	1	1900
SEP 11...	1300	6	6	0	<1	0	<1	10	10	2	1	1200

DATE	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
JUL 06...	9	0	60	<1	.1	.0	9	2	1	1	20	<3
SEP 11...	4	0	50	1	.1	.0	5	0	1	1	0	<3

06326530 YELLOWSTONE RIVER NEAR TERRY, MT--Continued

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPERATURE (DEG C) (00010)	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT 05...	1130	11.0	11800	76	2420	88
NOV 07...	1400	8.0	10800	40	1170	85
MAR 07...	1000	.0	9530	8	206	--
APR 12...	1430	4.5	15300	635	26200	72
MAY 10...	1330	9.0	14900	210	8450	60
JUN 14...	1300	20.5	22100	228	13600	52
JUL 06...	0800	22.0	22600	45	2750	60
AUG 16...	1130	21.0	9020	57	1390	90
SEP 11...	1300	23.5	6700	63	1140	98

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

PERIPHYTON

DATE	TIME	LENGTH OF EXPOSURE (DAYS) (00022)	PERIPHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M (00573)	PERIPHYTON BIOMASS ASH WEIGHT G/SQ M (00572)	CHLOR-A PERIPHYTON CHROMOGRAPHIC FLUOROM (MG/M2) (70957)	CHLOR-B PERIPHYTON CHROMOGRAPHIC FLUOROM (MG/M2) (70958)	BIOMASS CHLOROPHYLL RATIO PERIPHYTON (UNITS) (70950)
MAY 10...	1330	26	10.1	9.69	2.02	.000	203

06326555 CHERRY CREEK NEAR TERRY, MT

LOCATION.--Lat 46°51'00", long 105°19'27", on sec. line 25/30, T.13 N., on range line 50/51 E., Prairie County, Hydrologic Unit 10100004, on county road bridge 0.4 mi (0.6 km) upstream from Dry Creek and 4.0 mi (6.4 km) northwest of Terry.

DRAINAGE AREA.--358 mi² (927 km²).

PERIOD OF RECORD.--Water years 1978 to current year.

REMARKS.--Scheduled samplings were not possible during periods of no flow.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L) (00310)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)
OCT 05...	0830	E.10	0	3170	8.4	7.0	5.5	10.6	90	--	640	240
NOV 07...	1600	E.30	1	2990	8.3	21.0	9.5	10.9	104	--	610	210
APR 12...	1100	29	84	1660	8.2	-1.0	1.0	12.2	94	.8	410	190
MAY 10...	1100	6.5	1	2350	8.3	7.0	6.0	10.9	95	--	690	330
JUN 14...	1000	.14	3	3020	8.1	24.0	17.0	7.1	80	--	670	290

DATE	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	BROMIDE DIS-SOLVED (MG/L AS BR) (71870)	IODIDE, DIS-SOLVED (MG/L AS I) (71865)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)
OCT 05...	110	88	520	9.0	9.7	400	1300	14	.4	.1	.00	11
NOV 07...	110	81	480	8.5	8.5	400	1200	9.8	.3	--	--	10
APR 12...	64	60	200	4.3	5.6	220	620	5.8	.2	.0	.00	8.2
MAY 10...	120	95	280	4.6	6.7	360	910	8.9	.3	--	--	7.0
JUN 14...	120	91	460	7.7	9.7	380	1200	8.8	.4	.0	.00	9.4

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, KJEL-DAHL, TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C) (00689)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
OCT 05...	2290	3.11	.62	.01	.01	.33	.34	.01	4.2	.1	340	30
NOV 07...	2140	2.91	1.73	.01	.01	.14	.15	.00	--	--	250	10
APR 12...	1100	1.50	86.1	.04	.02	.49	.51	.02	7.9	--	130	30
MAY 10...	1640	2.23	28.8	.00	.01	.26	.27	.00	--	--	220	10
JUN 14...	2130	2.90	.81	.00	.00	.39	.39	.01	4.7	.4	210	10

06326555 CHERRY CREEK NEAR TERRY, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)
APR												
12...	1100	1	1	0	<1	1	<1	0	0	6	1	1000

DATE	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
APR												
12...	9	0	60	30	.1	.0	5	5	0	1	30	<3

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPER-ATURE (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)
APR					
12...	1100	1.0	29	77	6.0
MAY					
10...	1100	6.0	6.5	10	.18
JUN					
14...	1000	17.0	.14	18	.01

06326600 O'FALLON CREEK NEAR ISMAY, MT

LOCATION.--Lat 46°25'17", long 104°45'40", in NE¼SE¼ sec. 30, T.8 N., R.56 E., Fallon County, Hydrologic Unit 10100005, on left bank, about 350 ft (107 m) upstream of U.S. Highway 12, 1 mi (2 km) east of road to Ismay, 6.5 mi (10.5 km) southeast of Ismay, and 11.5 mi (18.5 km) west of Plevna.

DRAINAGE AREA.--669 mi² (1,733 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1977 to current year. Crest-stage partial-record data collected May 1973 to September 1977.

GAGE.--Water-stage recorder and crest-stage gages. Altitude of gage is 2,590 ft (789 m), from topographic map.

REMARKS.--Water-discharge records good except those for winter period, which are poor.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,100 ft³/s (87.8 m³/s) Mar. 22, 1978, gage height, 9.35 ft (2.850 m); no flow Sept. 29, 30, 1979.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge 1963-77, 4,700 ft³/s (133 m³/s) July 3, 1976, extension of crest-stage gage rating above 3,860 ft³/s (109 m³/s).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 298 ft³/s (8.44 m³/s) Apr. 15, gage height, 3.96 ft (1.207 m); maximum gage height, 5.67 ft (1.728 m) Mar. 19 (backwater from ice); no flow Sept. 29, 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.76	1.2	1.2	.40	.40	1.4	152	24	9.3	2.2	1.7	.30
2	.76	1.2	.80	.60	.40	1.2	123	22	9.3	2.1	1.1	.23
3	.76	2.8	.90	.70	.30	1.0	106	20	9.3	2.0	.90	.19
4	.76	2.3	1.0	.70	.30	1.2	93	17	9.7	1.5	.76	.11
5	.64	1.9	.90	.60	.40	1.6	78	16	8.5	1.6	.66	.08
6	.64	1.5	.70	.60	.60	2.0	63	17	7.1	1.6	.54	.04
7	.64	1.5	.70	.50	.60	2.5	64	16	11	1.5	.43	.04
8	.64	1.7	.70	.40	.70	3.0	88	16	12	2.3	.38	.04
9	.64	1.6	1.0	.30	.70	4.5	118	16	9.3	6.1	.37	.04
10	.64	1.0	2.0	.30	.70	5.0	200	17	9.8	6.7	.37	.04
11	.76	.90	2.3	.30	.80	4.0	209	16	8.6	2.5	.30	.04
12	.90	.90	2.2	.40	.80	8.0	194	16	8.4	1.4	.26	.04
13	.90	.80	2.1	.40	.80	14	163	15	7.5	1.1	.23	.04
14	.90	.80	2.1	.40	.80	12	131	15	5.9	.90	.15	.04
15	.90	.60	2.1	.40	.80	30	230	14	5.1	.80	.18	.04
16	.90	2.0	2.2	.40	.70	90	228	14	4.7	.90	.19	.04
17	1.1	3.0	2.2	.40	.80	110	226	13	3.9	.93	.15	.02
18	.90	2.0	2.2	.50	1.0	130	250	11	3.4	.85	.11	.04
19	1.7	1.0	2.2	.50	1.4	150	210	11	3.1	.76	.08	.02
20	1.2	.40	2.2	.60	1.2	120	167	11	3.1	.69	.04	.02
21	1.1	1.2	2.2	.70	1.0	105	115	11	2.8	.59	.08	.04
22	1.1	2.0	2.3	.80	1.2	100	83	10	2.8	.49	.15	.02
23	1.1	2.1	2.3	.80	1.3	97	62	9.3	2.6	.56	.15	.01
24	.90	2.2	2.3	.80	1.4	95	51	9.3	2.2	.80	.11	.01
25	1.1	2.5	2.3	.80	1.4	110	44	8.5	2.5	1.4	.11	.02
26	1.2	2.5	2.3	.70	1.5	180	40	8.0	2.4	28	.15	.02
27	1.1	2.5	2.0	.70	1.5	170	37	8.0	2.1	13	.21	.01
28	1.2	2.3	1.4	.60	1.6	165	32	7.1	2.2	4.0	.23	.01
29	1.2	2.1	1.0	.60	---	160	29	8.5	2.0	2.4	.23	.00
30	1.2	1.8	.60	.50	---	157	26	9.7	1.8	2.5	.64	.00
31	1.1	---	.30	.50	---	172	---	9.3	---	2.5	.55	---
TOTAL	29.34	50.30	50.70	16.90	25.10	2202.4	3612	415.7	172.4	94.67	11.51	1.59
MEAN	.95	1.68	1.64	.55	.90	71.0	120	13.4	5.75	3.05	.37	.053
MAX	1.7	3.0	2.3	.80	1.6	180	250	24	12	28	1.7	.30
MIN	.64	.40	.30	.30	.30	1.0	26	7.1	1.8	.49	.04	.00
AC-FT	58	100	101	34	50	4370	7160	825	342	188	23	3.2

CAL YR 1978 TOTAL 22900.79 MEAN 62.7 MAX 2780 MIN .30 AC-FT 45420
WTR YR 1979 TOTAL 6682.61 MEAN 18.3 MAX 250 MIN .00 AC-FT 13250

06326600 O'FALLON CREEK NEAR ISMAY, MT

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1978 to current year.

REVISIONS.--The concentrations of dissolved cadmium and dissolved lead for June 30, 1978 (1445 hours) were found in error and have been deleted.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)
OCT										
12...	0930	.06	3100	8.3	5.0	9.0	10.2	98	K9	190
NOV										
17...	1030	3.1	3190	8.2	.5	.0	13.0	97	110	300
DEC										
19...	1030	2.2	4470	8.4	-9.0	.0	11.7	89	K3	23
JAN										
18...	1045	.40	4900	8.2	-2.0	.0	9.2	70	K1	K12
FEB										
22...	1035	1.2	4250	8.2	20.0	.0	9.2	70	<1	110
MAR										
16...	1200	86	755	7.9	9.5	.5	11.2	88	K100	9800
APR										
05...	1415	80	1100	8.5	-9.0	.0	13.2	96	<1	180
MAY										
30...	1345	9.7	3000	8.6	16.5	16.5	8.3	92	550	1400
JUN										
13...	1540	8.2	3510	8.6	39.5	29.0	7.9	113	90	K140
JUL										
18...	1030	.71	3570	8.6	27.0	24.0	7.3	94	230	140
AUG										
06...	1145	.56	2010	8.6	29.5	25.0	7.5	99	82	194
SEP										
04...	1145	.06	3600	8.8	22.5	21.0	9.4	116	--	--

DATE	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)
OCT										
12...	350	0	41	61	640	15	9.6	660	0	540
NOV										
17...	410	0	56	65	660	14	9.0	790	0	650
DEC										
19...	610	0	86	96	870	15	12	940	8	790
JAN										
18...	0	0	110	110	1000	16	17	1140	0	940
FEB										
22...	700	0	100	110	960	16	12	1080	0	880
MAR										
16...	120	0	21	16	130	5.2	6.9	150	0	130
APR										
05...	190	0	33	26	160	5.1	6.5	230	2	200
MAY										
30...	490	0	68	77	550	11	9.6	650	11	550
JUN										
13...	450	0	56	75	700	14	9.6	590	29	530
JUL										
18...	470	0	47	86	730	15	10	630	24	550
AUG										
06...	320	0	40	51	570	14	11	480	19	420
SEP										
04...	360	0	40	62	740	17	12	697	41	540

06326600 O'FALLON CREEK NEAR ISMAY, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	CARBON DIOXIDE DIS- SOLVED (MG/L AS CO2) (00405)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)
OCT										
12...	5.3	1100	9.6	.8	1.9	4570	2190	6.22	10.6	.01
NOV										
17...	8.0	1200	10	.6	5.2	2370	2400	3.22	19.8	.05
DEC										
19...	6.1	1700	12	.6	8.4	3190	3260	4.34	18.9	.02
JAN										
18...	12	2000	15	.7	12	3810	3830	5.18	4.94	.07
FEB										
22...	11	1800	12	.6	13	3370	3540	4.58	10.9	.20
MAR										
16...	3.0	270	3.7	.1	7.1	535	529	.73	124	.36
APR										
05...	1.2	360	3.3	.2	8.9	769	714	1.05	166	.15
MAY										
30...	3.0	1200	8.3	.5	3.7	2230	2250	3.03	58.4	.01
JUN										
13...	2.6	1400	7.2	.5	2.1	2580	2570	3.51	57.1	.03
JUL										
18...	2.7	1400	9.7	.6	3.3	2680	2620	3.64	5.14	.02
AUG										
06...	2.1	1100	7.8	.5	4.5	2070	2050	2.82	3.13	.01
SEP										
04...	2.0	1500	13	.7	1.6	2700	2750	3.67	.44	.02

DATE	NITRO- GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS- PHORUS, TOTAL (MG/L AS P) (00665)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P) (00666)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS- PENDED TOTAL (MG/L AS C) (00689)	BORON, DIS- SOLVED (UG/L AS B) (01020)	IRON, DIS- SOLVED (UG/L AS FE) (01046)
OCT									
12...	.01	.61	.62	.03	.00	9.3	1.4	690	20
NOV									
17...	.01	.47	.48	.03	.01	10	1.1	700	30
DEC									
19...	.01	.60	.61	.02	.01	2.9	.0	850	20
JAN									
18...	.12	.53	.65	.02	.01	10	.5	920	30
FEB									
22...	.16	.51	.67	.02	.02	9.1	--	720	40
MAR									
16...	.02	1.1	1.1	.25	.07	15	4.6	150	170
APR									
05...	.12	.71	.83	.08	.04	11	1.8	210	210
MAY									
30...	.06	.69	.75	.04	.02	8.6	2.4	630	10
JUN									
13...	.03	.97	1.0	.04	.01	13	1.0	1000	10
JUL									
18...	.05	.86	.91	.04	.02	300	1.3	940	0
AUG									
06...	.01	1.1	1.1	.05	.02	14	1.4	640	30
SEP									
04...	.02	.82	.84	.04	.02	16	1.1	780	10

06326600 O'FALLON CREEK NEAR ISMAY, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	ALUMINUM, DISSOLVED (UG/L AS AL) (01106)	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DISSOLVED (UG/L AS AS) (01000)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA) (01007)	BARIUM, DISSOLVED (UG/L AS BA) (01005)	BERYLLIUM, TOTAL RECOVERABLE (UG/L AS BE) (01012)	BERYLLIUM, DISSOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD) (01027)	CADMIUM DISSOLVED (UG/L AS CD) (01025)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)
DEC 19...	1030	10	1	1	100	100	10	10	1	0	20
JAN 18...	1045	20	--	1	--	100	--	10	--	1	--
APR 05...	1415	30	--	1	--	40	--	<1	--	2	--
JUN 13...	1540	0	1	1	100	0	0	0	5	9	0

DATE	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COBALT, TOTAL RECOVERABLE (UG/L AS CO) (01037)	COBALT, DISSOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)	COPPER, DISSOLVED (UG/L AS CU) (01040)	LEAD, TOTAL RECOVERABLE (UG/L AS PB) (01051)	LEAD, DISSOLVED (UG/L AS PB) (01049)	LITHIUM TOTAL RECOVERABLE (UG/L AS LI) (01132)	LITHIUM DISSOLVED (UG/L AS LI) (01130)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)
DEC 19...	0	2	1	6	10	4	2	70	70	50	40
JAN 18...	0	--	2	--	5	--	1	--	80	--	60
APR 05...	0	--	<3	--	9	--	--	--	7	--	40
JUN 13...	0	2	0	5	12	37	--	90	50	90	0

DATE	MERCURY TOTAL RECOVERABLE (UG/L AS HG) (71900)	MERCURY DISSOLVED (UG/L AS HG) (71890)	MOLYBDENUM, TOTAL RECOVERABLE (UG/L AS MO) (01062)	MOLYBDENUM, DISSOLVED (UG/L AS MO) (01060)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI) (01067)	NICKEL, DISSOLVED (UG/L AS NI) (01065)	SELENIUM, TOTAL (UG/L AS SE) (01147)	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	VANADIUM, DISSOLVED (UG/L AS V) (01085)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)	ZINC, DISSOLVED (UG/L AS ZN) (01090)
DEC 19...	.0	.0	3	4	7	2	1	1	.0	20	30
JAN 18...	--	.0	--	1	--	5	--	1	.0	--	20
APR 05...	--	.0	--	10	--	1	--	1	1.9	--	9
JUN 13...	.0	.1	1	0	7	5	1	1	.0	50	30

DATE	TIME	ARSENIC TOTAL IN BOTTOM MATERIAL (UG/G AS AS) (01003)	BARIUM, RECOV. FM BOTTOM MATERIAL (UG/G AS BA) (01008)	BERYLLIUM, RECOV. FM BOTTOM MATERIAL (UG/G) (01013)	CADMIUM RECOV. FM BOTTOM MATERIAL (UG/G AS CD) (01028)	CHROMIUM, RECOV. FM BOTTOM MATERIAL (UG/G) (01029)	COBALT, RECOV. FM BOTTOM MATERIAL (UG/G AS CO) (01038)	COPPER, RECOV. FM BOTTOM MATERIAL (UG/G AS CU) (01043)
JUN 13...	1540	58	120	1	0	6	0	7
AUG 06...	1145	33	200	1	1	10	15	12

DATE	LEAD, RECOV. FM BOTTOM MATERIAL (UG/G AS PB) (01052)	MANGANESE, RECOV. FM BOTTOM MATERIAL (UG/G) (01053)	MERCURY RECOV. FM BOTTOM MATERIAL (UG/G AS HG) (71921)	MOLYBDENUM, RECOV. FM BOTTOM MATERIAL (UG/G) (01063)	NICKEL, RECOV. FM BOTTOM MATERIAL (UG/G AS NI) (01068)	SELENIUM, TOTAL IN BOTTOM MATERIAL (UG/G) (01148)	ZINC, RECOV. FM BOTTOM MATERIAL (UG/G AS ZN) (01093)
JUN 13...	20	1500	.05	0	10	0	28
AUG 06...	22	1300	.04	0	26	0	30

06326600 O'FALLON CREEK NEAR ISMAY, MT--Continued

RADIOCHEMICAL ANALYSES, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT) (80030)	GROSS ALPHA, DIS-SOLVED (PCI/L AS U-NAT) (01515)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT) (80040)	GROSS ALPHA, SUSP. TOTAL (PCI/L AS U-NAT) (01516)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137) (03515)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137) (03516)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90) (80050)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/YT-90) (80060)
DEC									
19...	1030	60	41	.5	.3	26	2.0	24	2.1
JUN									
13...	1540	<50	<34	1.0	.7	<17	1.2	<16	1.2

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPER-ATURE (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70340)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)
OCT								
12...	0930	9.0	.86	45	.10	--	--	--
NOV								
17...	1030	.0	3.1	49	.41	--	--	--
DEC								
19...	1030	.0	2.2	125	.74	--	--	--
JAN								
18...	1045	.0	.48	99	.13	--	--	--
FEB								
22...	1035	.0	1.2	76	.25	--	--	--
MAR								
16...	1200	.5	86	376	87	83	97	100
26...	1550	.0	118	454	145	--	--	--
APR								
05...	1415	.0	80	97	21	--	--	--
MAY								
30...	1345	16.5	9.7	156	4.1	--	--	--
JUN								
13...	1540	29.0	8.2	115	2.5	--	--	--
JUL								
06...	1640	30.0	1.8	83	.40	--	--	--
18...	1030	24.0	.71	110	.21	--	--	--
AUG								
06...	1145	25.0	.56	142	.21	--	--	--
SEP								
04...	1145	21.0	.06	156	.03	--	--	--

PARTICLE-SIZE DISTRIBUTION OF SURFACE BED MATERIAL, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	BED MAT. FALL DIAM. % FINER THAN .062 MM (80158)	BED MAT. FALL DIAM. % FINER THAN .125 MM (80159)	BED MAT. FALL DIAM. % FINER THAN .250 MM (80160)	BED MAT. FALL DIAM. % FINER THAN .500 MM (80161)	BED MAT. FALL DIAM. % FINER THAN 1.00 MM (80162)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)
APR							
05...	1415	6	11	15	17	20	25
JUN							
13...	1540	1	2	7	17	24	29
AUG							
06...	1145	5	9	15	18	24	32

06326600 O'FALLON CREEK NEAR ISMAY, MT--Continued

PARTICLE-SIZE DISTRIBUTION OF SURFACE BED MATERIAL, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM (80173)	BED MAT. SIEVE DIAM. % FINER THAN 64.0 MM (80174)	BED MAT. SIEVE DIAM. % FINER THAN 128 MM (80175)
APR 05...	35	45	53	70	100	--
JUN 13...	40	56	63	76	89	100
AUG 06...	45	65	68	80	100	--

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

PERIPHYTON

DATE	TIME	LENGTH OF EXPO-SURE (DAYS) (00022)	PERI-PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M (00573)	PERI-PHYTON BIOMASS ASH WEIGHT G/SQ M (00572)	CHLOR-A PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2) (70957)	CHLOR-B PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2) (70958)	BIOMASS CHLORO-PHYLL RATIO PERI-PHYTON (UNITS) (70950)
NOV 17...	1030	36	1.18	1.18	.100	.000	.00
FEB 22...	1035	35	.320	.160	.080	.000	200
MAY 30...	1345	55	74.6	70.2	7.43	.000	592
AUG 06...	1145	19	33.7	30.6	3.62	.000	856

YELLOWSTONE RIVER BASIN

06326600 O'FALLON CREEK NEAR ISMAY, MT--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

PHYTOPLANKTON

DATE TIME	OCT 12,78 0930	NOV 17,78 1030	DEC 19,78 1030
TOTAL CELLS/ML	2200	2600	1700
DIVERSITY: DIVISION	1.5	1.5	1.3
.CLASS	1.5	1.5	1.3
..ORDER	2.3	1.6	1.6
...FAMILY	2.6	2.0	1.7
....GENUS	3.0	2.7	1.7

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...OOCYSTACEAE						
....ANKISTRODESMUS	140	6	760#	29	760#	45
....CHODATELLA	--	-	22	1	--	-
....DICTYOSPHAERIUM	--	-	310	12	--	-
....OOCYSTIS	--	-	44	2	--	-
....SELENASTRUM	17	1	--	-	--	-
....TETRAEDRON	*	0	22	1	--	-
....TREUBARIA	*	0	--	-	--	-
....WESTELLA	230	10	--	-	--	-
...SCENEDESMACEAE						
....CRUCIGENIA	200	9	89	3	--	-
....SCENEDESMUS	84	4	220	8	19	1
..TETRASPORALES						
...COCCOMYXACEAE						
....ELAKATOTHRIX	34	2	--	-	--	-
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CHLAMYDOMONAS	100	5	22	1	67	4
CHRYSOPHYTA						
.BACILLARIOPHYCEAE						
..CENTRALES						
...COSCINODISCACEAE						
....CYCLOTELLA	130	6	--	-	29	2
..PENNALES						
...CYMBELLACEAE						
....EPITHEMIA	*	0	--	-	--	-
...GOMPHONEMATACEAE						
....GOMPHONEMA	*	0	--	-	--	-
...NAVICULACEAE						
....DIPLONEIS	--	-	67	3	--	-
....NAVICULA	25	1	--	-	48	3
...NITZSCHIACEAE						
....NITZSCHIA	34	2	44	2	29	2
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..CHROOCOCCALES						
...CHROOCOCCACEAE						
....ANACYSTIS	910#	41	--	-	730#	43
..HORMOGONALES						
...OSCILLATORIACEAE						
....OSCILLATORIA	210	9	240	9	--	-
EUGLENOPHYTA (EUGLENOIDS)						
.EUGLENOPHYCEAE						
..EUGLENALES						
...EUGLENACEAE						
....EUGLENA	34	2	22	1	--	-
....TRACHELOMONAS	59	3	780#	2[illegible]	10	1

06326600 O'FALLON CREEK NEAR ISMAY, MT--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

PHYTOPLANKTON

DATE	JAN 18,79	FEB 22,79	MAR 16,79
TIME	1045	1035	1200
TOTAL CELLS/ML	260	210	200
DIVERSITY: DIVISION	1.5	1.7	1.5
.CLASS	1.5	1.7	1.5
..ORDER	2.1	1.7	1.5
...FAMILY	2.3	2.6	1.5
....GENUS	2.3	2.8	1.5

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...OOCYSTACEAE						
....ANKISTRODESMUS	61#	24	45#	22	--	-
...SCENEDESMACEAE						
....CRUCIGENIA	--	-	40#	20	--	-
....SCENEDESMUS	10	4	10	5	--	-
CHRYSOPHYTA						
.BACILLARIOPHYCEAE						
..CENTRALES						
...COSCINODISCACEAE						
....CYCLOTELLA	96#	37	--	-	--	-
..PENNALES						
...CYMBELLACEAE						
....EPITHEMIA	10	4	--	-	--	-
....RHOPALODIA	--	-	5	2	--	-
...FRAGILARIACEAE						
....SYNEDRA	--	-	15	7	--	-
...NITZSCHIACEAE						
....NITZSCHIA	10	4	45#	22	50#	25
...SURIRELLACEAE						
....SURIRELLA	--	-	5	2	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..CHROOCOCCALES						
...CHROOCOCCACEAE						
....ANACYSTIS	20	8	25	12	--	-
..HORMOGONALES						
...OSCILLATORIACEAE						
....OSCILLATORIA	50#	20	--	-	--	-
....SPIRULINA	--	-	--	-	50#	25
EUGLENOPHYTA (EUGLENOIDS)						
.EUGLENOPHYCEAE						
..EUGLENALES						
...EUGLENACEAE						
....TRACHELOMONAS	--	-	15	7	100#	50

06326600 O'FALLON CREEK NEAR ISMAY, MT--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

PHYTOPLANKTON

DATE	APR 5,79	MAY 30,79	JUN 13,79
TIME	1415	1345	1540
TOTAL CELLS/ML	140	10000	1400
DIVERSITY: DIVISION	0.7	1.2	1.2
.CLASS	0.7	1.2	1.2
..ORDER	1.4	1.2	1.3
...FAMILY	1.4	1.3	1.7
....GENUS	1.4	1.6	2.7

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...OOCYSTACEAE						
....ANKISTRODESMUS	100#	70	5600#	54	600#	44
....DICTYOSPHAERIUM	--	-	--	-	64	5
....OOCYSTIS	--	-	--	-	51	4
....SELENASTRUM	--	-	64	1	13	1
....TETRAEDRON	--	-	--	-	13	1
....TREUBARIA	--	-	--	-	13	1
....WESTELLA	--	-	--	-	51	4
...SCENEDESMACEAE						
....SCENEDESMUS	--	-	130	1	130	9
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CHLAMYDOMONAS	14	10	--	-	13	1
CHRYSOPHYTA						
.BACILLARIOPHYCEAE						
..CENTRALES						
...COSCINODISCACEAE						
....CYCLOTELLA	14	10	--	-	--	-
..PENNALES						
...NAVICULACEAE						
....NAVICULA	--	-	--	-	13	1
...NITZSCHIACEAE						
....NITZSCHIA	14	10	450	4	26	2
CRYPTOPHYTA (CRYPTOMONADS)						
.CRYPTOPHYCEAE						
..CRYPTOMONADALES						
...CRYPTOMONADACEAE						
....CRYPTOMONAS	--	-	--	-	13	1
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..CHROOCOCCALES						
...CHROOCOCCACEAE						
....AGMENELLUM	--	-	1000	10	260#	19
....ANACYSTIS	--	-	3100#	30	64	5
EUGLENOPHYTA (EUGLENOIDS)						
.EUGLENOPHYCEAE						
..EUGLENALES						
...EUGLENACEAE						
....EUGLENA	--	-	--	-	51	4

06326600 O'FALLON CREEK NEAR ISMAY, MT--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

PHYTOPLANKTON

DATE	JUL 18,79	AUG 6,79	SEP 4,79
TIME	1030	1145	1145
TOTAL CELLS/ML	2700	120000	26000
DIVERSITY: DIVISION	0.4	0.4	0.9
.CLASS	0.4	0.4	0.9
..ORDER	0.5	0.7	1.3
...FAMILY	0.8	0.7	1.4
....GENUS	2.2	0.9	1.5

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...OOCYSTACEAE						
....ANKISTRODESMUS	1000#	39	3200	3	3900	15
....DICTYOSPHAERIUM	930#	35	2300	2	--	-
....KIRCHNERIELLA	--	-	*	0	--	-
....OOCYSTIS	270	10	1300	1	670	3
....SELENASTRUM	26	1	--	-	--	-
....TETRAEDRON	*	0	--	-	--	-
....TREUBARIA	39	1	--	-	--	-
...SCENEDESMACEAE						
....SCENEDESMUS	160	6	*	0	450	2
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CHLAMYDOMONAS	39	1	*	0	--	-
...PHACOTACEAE						
....PHACOTUS	--	-	*	0	--	-
CHRYSOPHYTA						
.BACILLARIOPHYCEAE						
..CENTRALES						
...COSCINODISCACEAE						
....CYCLOTELLA	--	-	--	-	*	0
..PENNALES						
...ACHNANTHACEAE						
....ACHNANTHES	--	-	*	0	--	-
....COCCONEIS	--	-	--	-	*	0
...CYMBELLACEAE						
....RHOPALODIA	--	-	--	-	*	0
...FRAGILARIACEAE						
....SYNEDRA	--	-	--	-	*	0
...NAVICULACEAE						
....NAVICULA	--	-	*	0	*	0
...NITZSCHIACEAE						
....NITZSCHIA	--	-	--	-	*	0
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..CHROOCOCCALES						
...CHROOCOCCACEAE						
....ANACYSTIS	130	5	110000#	87	18000#	68
..HORMOGONALES						
...NOSTOCACEAE						
....ANABAENOPSIS	--	-	--	-	2700	10
...OSCILLATORIACEAE						
....LYNGBYA	--	-	4900	4	--	-
....OSCILLATORIA	--	-	2500	2	--	-
EUGLENOPHYTA (EUGLENOIDS)						
.EUGLENOPHYCEAE						
..EUGLENALES						
...EUGLENACEAE						
....TRACHELOMONAS	*	0	--	-	--	-
PYRRHOPHYTA (FIRE ALGAE)						
.DINOPHYCEAE						
..PERIDINIALES						
...GLENODINIACEAE						
....GLENODINIUM	*	0	--	-	--	-
...PERIDINIACEAE						
....PERIDINIUM	--	-	--	-	*	0

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

06326953 CLEAR CREEK NEAR HOYT, MT

LOCATION.--Lat 47°00'05", long 104°56'31", on common line between sec.1, T.14 N., R.53 E., and sec.6, T.14 N., R.24 E., Dawson County, Hydrologic Unit 10100004, at county road 6.5 mi (10.5 km) northwest of Hoyt.

DRAINAGE AREA.--38.1 mi^2 (98.7 km^2).

PERIOD OF RECORD.--Water years 1978 to current year.

REMARKS.--Scheduled samplings were not possible during periods of no flow.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)
FEB 22...	1000	E.04	1560	7.5	-9.0	1.5	6.7	53	<1	<1
MAR 18...	1130	26	720	8.0	3.0	1.0	11.8	91	39	780
APR 05...	1230	14	1670	8.0	-8.0	.0	11.4	84	<1	21
MAY 11...	0800	11	2050	8.3	2.0	5.0	11.2	99	K13	K10
JUN 22...	1200	1.2	1630	8.3	24.5	19.5	15.2	167	200	130

DATE	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	BICARBONATE (MG/L AS HCO3) (00440)	CARBONATE (MG/L AS CO3) (00445)	ALKALINITY (MG/L AS CACO3) (00410)
FEB 22...	630	410	97	95	130	2.2	5.6	270	0	220
MAR 18...	300	130	49	43	50	1.3	7.8	203	0	170
APR 05...	770	460	110	120	120	1.9	8.1	375	0	310
MAY 11...	1000	640	140	160	140	1.9	6.9	434	0	360
JUN 22...	700	370	100	110	130	2.1	6.6	410	0	340

DATE	CARBON DIOXIDE DISSOLVED (MG/L AS CO2) (00405)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)
FEB 22...	14	630	8.4	.2	10	1130	1110	1.54	.12	.05
MAR 18...	3.2	240	4.2	.1	8.7	512	503	.70	35.9	.33
APR 05...	6.0	640	8.8	.2	13	1290	1210	1.75	48.8	.12
MAY 11...	3.5	890	9.9	.2	6.1	1680	1570	2.28	49.9	.00
JUN 22...	3.3	630	7.7	.3	8.0	987	1200	1.34	3.22	.04

06326953 CLEAR CREEK NEAR HOYT, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITROGEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)	PHOSPHORUS, DISSOLVED (MG/L AS P) (00666)	CARBON, ORGANIC DISSOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUSPENDED TOTAL (MG/L AS C) (00689)	BORON, DISSOLVED (UG/L AS B) (01020)	IRON, DISSOLVED (UG/L AS FE) (01046)
FEB 22...	.01	.20	.21	.01	---	3.4	--	170	10
MAR 18...	.05	.60	.65	.09	.06	--	--	120	60
APR 05...	.02	.37	.39	.02	.02	5.6	.4	130	10
MAY 11...	.02	.19	.21	.00	.01	7.3	1.6	170	10
JUN 22...	.00	.27	.27	.01	.01	6.8	--	210	10

DATE	TIME	ALUMINUM, DISSOLVED (UG/L AS AL) (01106)	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DISSOLVED (UG/L AS AS) (01000)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA) (01007)	BARIUM, DISSOLVED (UG/L AS BA) (01005)	BERYLLIUM, TOTAL RECOVERABLE (UG/L AS BE) (01012)	BERYLLIUM, DISSOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD) (01027)	CADMIUM DISSOLVED (UG/L AS CD) (01025)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)
MAR 18...	1130	30	1	1	0	0	0	0	4	3	10
JUN 22...	1200	0	1	1	100	100	0	0	9	4	10

DATE	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COBALT, TOTAL RECOVERABLE (UG/L AS CO) (01037)	COBALT, DISSOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)	COPPER, DISSOLVED (UG/L AS CU) (01040)	LEAD, TOTAL RECOVERABLE (UG/L AS PB) (01051)	LEAD, DISSOLVED (UG/L AS PB) (01049)	LITHIUM TOTAL RECOVERABLE (UG/L AS LI) (01132)	LITHIUM DISSOLVED (UG/L AS LI) (01130)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)
MAR 18...	0	0	0	29	6	62	19	20	20	40	30
JUN 22...	0	1	0	2	3	92	36	50	40	10	0

DATE	MERCURY TOTAL RECOVERABLE (UG/L AS HG) (71900)	MERCURY DISSOLVED (UG/L AS HG) (71890)	MOLYBDENUM, TOTAL RECOVERABLE (UG/L AS MO) (01062)	MOLYBDENUM, DISSOLVED (UG/L AS MO) (01060)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI) (01067)	NICKEL, DISSOLVED (UG/L AS NI) (01065)	SELENIUM, TOTAL (UG/L AS SE) (01147)	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	VANADIUM, DISSOLVED (UG/L AS V) (01085)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)	ZINC, DISSOLVED (UG/L AS ZN) (01090)
MAR 18...	.1	.0	2	0	3	0	0	0	.4	40	10
JUN 22...	.0	.0	0	0	3	3	0	0	.0	20	10

DATE	TIME	ARSENIC TOTAL IN BOTTOM MATERIAL (UG/G AS AS) (01003)	BARIUM, RECOV. FM BOTTOM MATERIAL (UG/G AS BA) (01008)	BERYLLIUM, RECOV. FM BOTTOM MATERIAL (UG/G) (01013)	CADMIUM RECOV. FM BOTTOM MATERIAL (UG/G AS CD) (01028)	CHROMIUM, RECOV. FM BOTTOM MATERIAL (UG/G) (01029)	COBALT, RECOV. FM BOTTOM MATERIAL (UG/G AS CO) (01038)	COPPER, RECOV. FM BOTTOM MATERIAL (UG/G AS CU) (01043)
MAR 18...	1130	8	64	0	2	6	10	11
JUN 22...	1200	43	110	0	0	2	0	3

06326953 CLEAR CREEK NEAR HOYT, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	LEAD, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS PB) (01052)	MANGA-NESE, RECOV. FM BOT-TOM MA-TERIAL (UG/G) (01053)	MERCURY RECOV. FM BOT-TOM MA-TERIAL (UG/G AS HG) (71921)	MOLYB-DENUM, RECOV. FM BOT-TOM MA-TERIAL (UG/G) (01063)	NICKEL, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS NI) (01068)	SELE-NIUM, TOTAL IN BOT-TOM MA-TERIAL (UG/G) (01148)	ZINC, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS ZN) (01093)
MAR 18...	30	110	.10	6	20	0	25
JUN 22...	0	170	.01	0	0	0	8

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPER-ATURE (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)
FEB 22...	1000	1.5	E.04	5	0.0
MAR 18...	1130	1.0	26	20	1.4
APR 05...	1230	.0	14	12	.45
MAY 11...	0800	5.0	11	18	.53
JUN 22...	1200	19.5	1.2	14	.05

PARTICLE-SIZE DISTRIBUTION OF SURFACE BED MATERIAL, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	BED MAT. FALL DIAM. % FINER THAN .062 MM (80158)	BED MAT. FALL DIAM. % FINER THAN .125 MM (80159)	BED MAT. FALL DIAM. % FINER THAN .250 MM (80160)	BED MAT. FALL DIAM. % FINER THAN .500 MM (80161)	BED MAT. FALL DIAM. % FINER THAN 1.00 MM (80162)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM (80173)	BED MAT. SIEVE DIAM. % FINER THAN 64.0 MM (80174)
MAR 18...	1130	18	25	36	43	45	47	50	53	58	65	100
JUN 22...	1200	1	1	1	2	4	6	11	29	53	86	100

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

PHYTOPLANKTON

DATE	FEB 22,79	MAR 16,79
TIME	1000	1130
TOTAL CELLS/ML	440	160
DIVERSITY: DIVISION	0.2	1.7
.CLASS	0.2	1.7
..ORDER	0.2	2.3
...FAMILY	1.6	2.8
....GENUS	1.6	2.8

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)				
.CHLOROPHYCEAE				
..CHLOROCOCCALES				
...OOCYSTACEAE				
....OOCYSTIS	--	-	40#	26
..TETRASPORALES				
...COCCOMYXACEAE				
....ELAKATOTHRIX	--	-	10	6
..VOLVOCALES				
...CHLAMYDOMONADACEAE				
....CHLAMYDOMONAS	5	1	--	-
CHRYSOPHYTA				
.BACILLARIOPHYCEAE				
..CENTRALES				
...COSCINODISCACEAE				
....CYCLOTELLA	--	-	15	10
..PENNALES				
...CYMBELLACEAE				
....CYMBELLA	--	-	5	3
...FRAGILARIACEAE				
....FRAGILARIA	200#	44	30#	19
...GOMPHONEMATACEAE				
....GOMPHONEMA	180#	40	--	-
...NAVICULACEAE				
....NAVICULA	56	13	10	6
...NITZSCHIACEAE				
....NITZSCHIA	5	1	5	3
CYANOPHYTA (BLUE-GREEN ALGAE)				
.CYANOPHYCEAE				
..HORMOGONALES				
...NOSTOCACEAE				
....ANABAENA	--	-	35#	23
EUGLENOPHYTA (EUGLENOIDS)				
.EUGLENOPHYCEAE				
..EUGLENALES				
...EUGLENACEAE				
....TRACHELOMONAS	--	-	5	3
PYRRHOPHYTA (FIRE ALGAE)				
.DINOPHYCEAE				
..PERIDINIALES				
...GLENODINIACEAE				
....GLENODINIUM	5	1	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

06326953 CLEAR CREEK NEAR HOYT, MT--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

PHYTOPLANKTON

DATE TIME	APR 5,79 1230	MAY 11,79 0800	JUN 22,79 1200
TOTAL CELLS/ML	240	98	1500
DIVERSITY: DIVISION	0.0	0.0	0.1
.CLASS	0.0	0.0	0.1
..ORDER	0.0	0.0	0.3
...FAMILY	0.0	1.7	1.2
....GENUS	0.0	1.7	1.2

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHRYSOPHYTA						
.BACILLARIOPHYCEAE						
..CENTRALES						
...COSCINODISCACEAE						
....CYCLOTELLA	--	-	--	-	26	2
..PENNALES						
...DIATOMACEAE						
....DIATOMA	--	-	14	14	--	-
...FRAGILARIACEAE						
....SYNEDRA	--	-	14	14	--	-
...NAVICULACEAE						
....MASTOGLOIA	--	-	14	14	--	-
...NITZSCHIACEAE						
....NITZSCHIA	--	-	56#	57	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..CHROOCOCCALES						
...CHROOCOCCACEAE						
....ANACYSTIS	--	-	--	-	39	3
..HORMOGONALES						
...NOSTOCACEAE						
....ANABAENA	240#	100	--	-	910#	61
...OSCILLATORIACEAE						
....OSCILLATORIA	--	-	--	-	520#	35

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

PERIPHYTON

DATE	TIME	LENGTH OF EXPO-SURE (DAYS) (00022)	PERI-PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M (00573)	PERI-PHYTON BIOMASS ASH WEIGHT G/SQ M (00572)	CHLOR-A PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2) (70957)	CHLOR-B PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2) (70958)	BIOMASS CHLORO-PHYLL RATIO PERI-PHYTON (UNITS) (70950)
MAY							
11...	0800	36	4.09	3.47	3.37	.420	184
JUN							
22...	1200	42	10.7	9.69	1.19	.100	849

06326995 UPPER SEVENMILE CREEK NEAR LINDSAY, MT

LOCATION.--Lat 47°08'17", long 104°56'40", in NW¼NE¼NE¼ sec.24, T.16 N., R.53 E., Dawson County, Hydrologic Unit 10100004, at bridge on gravel road 0.6 mi (1.0 km) south of State Highway 200 and 11.5 mi (18.5 km) west-northwest of Glendive.

DRAINAGE AREA.--137 mi² (355 km²).

PERIOD OF RECORD.--Water years 1978 to current year.

REMARKS.--Scheduled samplings were not possible during periods of no flow.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)
OCT 03...	1030	.45	2050	8.0	10.0	11.0	9.4	93	K14	K20
MAR 13...	1530	14	1300	8.2	2.5	.5	12.6	95	K11	K17000
APR 06...	0900	8.7	1700	8.0	-3.0	.0	11.2	84	K1	K10
MAY 10...	1555	13	1920	8.4	7.0	11.5	9.5	94	K15	K6
JUN 22...	0850	.47	2090	8.1	20.5	17.0	8.4	94	270	700

DATE	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)
OCT 03...	940	520	130	150	280	4.0	10	510	0	420
MAR 13...	460	250	60	70	140	2.8	9.4	260	0	210
APR 06...	740	430	100	120	150	2.4	8.5	380	0	310
MAY 10...	850	500	110	140	170	2.5	7.8	420	6	360
JUN 22...	880	480	120	140	260	3.6	6.8	490	0	400

DATE	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)
OCT 03...	8.2	920	12	.3	12	1950	1770	2.65	2.37	.01
MAR 13...	2.6	500	7.0	.2	8.4	936	931	1.27	35.4	.54
APR 06...	6.1	700	7.3	.2	12	1340	1290	1.82	31.5	.07
MAY 10...	2.8	800	7.6	.2	4.6	1540	1450	2.09	54.1	.00
JUN 22...	6.2	1000	8.6	.3	9.5	1890	1790	2.57	2.40	.08

06326995 UPPER SEVENMILE CREEK NEAR LINDSAY, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, KJEL-DAHL, TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C) (00689)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
OCT 03...	.01	.28	.29	--	.02	4.3	.2	320	40
MAR 13...	.15	.95	1.1	.04	.02	13	1.0	140	40
APR 06...	.01	.51	.52	.02	.01	7.7	.5	150	20
MAY 10...	.01	.53	.54	.01	.01	6.6	.3	180	10
JUN 22...	.00	.12	.12	.01	.00	5.2	--	240	10

DATE	TIME	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)
MAR 13...	1530	10	1	1	0	0	0	0	4	0	0
JUN 22...	0850	0	1	1	0	100	0	0	8	8	10

DATE	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO) (01037)	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	LITHIUM TOTAL RECOV-ERABLE (UG/L AS LI) (01132)	LITHIUM DIS-SOLVED (UG/L AS LI) (01130)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)
MAR 13...	0	3	0	8	8	10	2	20	20	100	90
JUN 22...	10	2	0	4	2	73	66	50	50	50	40

DATE	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	MOLYB-DENUM, TOTAL RECOV-ERABLE (UG/L AS MO) (01062)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO) (01060)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	VANA-DIUM, DIS-SOLVED (UG/L AS V) (01085)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
MAR 13...	.2	.0	1	0	3	0	1	0	.0	30	20
JUN 22...	.0	.0	1	6	2	3	0	0	.0	20	40

DATE	TIME	ARSENIC TOTAL IN BOT-TOM MA-TERIAL (UG/G AS AS) (01003)	BARIUM, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS BA) (01008)	BERYL-LIUM, RECOV. FM BOT-TOM MA-TERIAL (UG/G) (01013)	CADMIUM RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CD) (01028)	CHRO-MIUM, RECOV. FM BOT-TOM MA-TERIAL (UG/G) (01029)	COBALT, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CO) (01038)	COPPER, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CU) (01043)
MAR 13...	1530	27	52	1	0	4	0	24
JUN 22...	0850	32	120	0	0	2	0	4

06326995 UPPER SEVENMILE CREEK NEAR LINDSAY, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	LEAD, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS PB) (01052)	MANGA-NESE, RECOV. FM BOT-TOM MA-TERIAL (UG/G) (01053)	MERCURY RECOV. FM BOT-TOM MA-TERIAL (UG/G AS HG) (71921)	MOLYB-DENUM, RECOV. FM BOT-TOM MA-TERIAL (UG/G) (01063)	NICKEL, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS NI) (01068)	SELE-NIUM, TOTAL IN BOT-TOM MA-TERIAL (UG/G) (01148)	ZINC, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS ZN) (01093)
MAR							
13...	0	150	.20	4	10	0	24
JUN							
22...	0	200	.01	0	0	0	8

RADIOCHEMICAL ANALYSES, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT) (80030)	GROSS ALPHA, DIS-SOLVED (PCI/L AS U-NAT) (01515)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT) (80040)	GROSS ALPHA, SUSP. TOTAL (PCI/L AS U-NAT) (01516)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137) (03515)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137) (03516)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90) (80050)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/YT-90) (80060)
MAR									
13...	1530	<13	<8.8	1.1	.7	12	1.0	11	1.0
JUN									
22...	0850	<31	<21	<.4	<.3	11	1.0	10	1.1

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPER-ATURE (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)
OCT					
03...	1030	11.0	.45	49	.06
MAR					
13...	1530	.5	14	46	1.7
24...	1300	.0	85	82	19
APR					
06...	0900	.0	8.7	38	.89
MAY					
10...	1555	11.5	13	10	.35
JUN					
22...	0850	17.0	.47	30	.04

PARTICLE-SIZE DISTRIBUTION OF SURFACE BED MATERIAL, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	BED MAT. FALL DIAM. % FINER THAN .062 MM (80158)	BED MAT. FALL DIAM. % FINER THAN .125 MM (80159)	BED MAT. FALL DIAM. % FINER THAN .250 MM (80160)	BED MAT. FALL DIAM. % FINER THAN .500 MM (80161)	BED MAT. FALL DIAM. % FINER THAN 1.00 MM (80162)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM (80173)	BED MAT. SIEVE DIAM. % FINER THAN 64.0 MM (80174)
MAR												
13...	1530	1	2	3	5	10	13	21	36	59	100	--
JUN												
22...	0850	2	4	7	13	15	18	26	40	49	73	100

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

PERIPHYTON

DATE	TIME	LENGTH OF EXPO-SURE (DAYS) (00022)	PERI-PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M (00573)	PERI-PHYTON BIOMASS ASH WEIGHT G/SQ M (00572)	CHLOR-A PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2) (70957)	CHLOR-B PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2) (70958)	BIOMASS CHLORO-PHYLL RATIO PERI-PHYTON (UNITS) (70950)
OCT							
03...	1030	25	5.04	4.01	4.99	1.20	206
APR							
06...	0900	18	.000	.000	.000	.000	.00

06326995 UPPER SEVENMILE CREEK NEAR LINDSAY, MT--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

PHYTOPLANKTON

DATE	OCT 5,78		MAR 13,79		APR 6,79		MAY 10,79		JUN 22,79	
TIME	1030		1530		0900		1555		0850	
TOTAL CELLS/ML	1500		310		72		920		64	
DIVERSITY: DIVISION	1.5		1.8		0.0		1.4		1.0	
.CLASS	1.5		1.8		0.0		1.4		1.0	
..ORDER	1.7		2.4		1.0		1.6		1.5	
...FAMILY	2.1		3.2		1.0		1.4		1.5	
....GENUS	2.3		3.4		1.0		1.5		1.5	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)										
.CHLOROPHYCEAE										
..CHLOROCOCCALES										
...OOCYSTACEAE										
....ANKISTRODESMUS	*	0	--	-	29#	40	530#	58	26#	40
....DICTYOSPHAERIUM	--	-	10	3	--	-	--	-	--	-
....NEPHROCYTIUM	--	-	--	-	--	-	14	2	--	-
....TETRAEDRON	*	0	--	-	--	-	--	-	--	-
...SCENEDESMACEAE										
....CRUCIGENIA	30	2	--	-	--	-	--	-	--	-
....SCENEDESMUS	84	6	40	13	--	-	--	-	--	-
..TETRASPORALES										
...COCCOMYXACEAE										
....ELAKATOTHRIX	--	-	15	5	--	-	--	-	--	-
..VOLVOCALES										
...CHLAMYDOMONADACEAE										
....CHLAMYDOMONAS	34	2	--	-	43#	60	--	-	13#	20
..ZYGNEMATALES										
...DESMIDIACEAE										
....CLOSTERIUM	*	0	--	-	--	-	--	-	--	-
....STAURASTRUM	--	-	5	2	--	-	--	-	--	-
CHRYSOPHYTA										
.BACILLARIOPHYCEAE										
..CENTRALES										
...COSCINODISCACEAE										
....CYCLOTELLA	72	5	--	-	--	-	14	2	--	-
....STEPHANODISCUS	11	1	--	-	--	-	--	-	--	-
..PENNALES										
...ACHNANTHACEAE										
....COCCONEIS	--	-	10	3	--	-	--	-	--	-
...CYMBELLACEAE										
....AMPHORA	*	0	--	-	--	-	--	-	--	-
....CYMBELLA	*	0	--	-	--	-	--	-	--	-
...FRAGILARIACEAE										
....FRAGILARIA	--	-	50#	16	--	-	--	-	--	-
....SYNEDRA	11	1	5	2	--	-	--	-	--	-
...GOMPHONEMATACEAE										
....GOMPHONEMA	*	0	--	-	--	-	--	-	--	-
...NAVICULACEAE										
....GYROSIGMA	*	0	--	-	--	-	--	-	*	-
....NAVICULA	84	6	30	10	--	-	--	-	--	-
...NITZSCHIACEAE										
....NITZSCHIA	11	1	--	-	--	-	--	-	26#	40
...SURIRELLACEAE										
....SURIRELLA	--	-	5	2	--	-	--	-	--	-
CRYPTOPHYTA (CRYPTOMONADS)										
.CRYPTOPHYCEAE										
..CRYPTOMONADALES										
...CRYPTOCHRYSIDACEAE										
....CHROOMONAS	38	3	--	-	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)										
.CYANOPHYCEAE										
..CHROOCOCCALES										
...CHROOCOCCACEAE										
....ANACYSTIS	--	-	10	3	--	-	86	9	--	-
....GOMPHOSPHAERIA	--	-	25	8	--	-	--	-	--	-
..HORMOGONALES										
...NOSTOCACEAE										
....ANABAENA	--	-	35	11	--	-	--	-	--	-
...OSCILLATORIACEAE										
....OSCILLATORIA	910#	63	50#	16	--	-	--	-	--	-
...RIVULARIACEAE										
....RAPHIDIOPSIS	87	6	--	-	--	-	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)										
.EUGLENOPHYCEAE										
..EUGLENALES										
...EUGLENACEAE										
....EUGLENA	19	1	--	-	--	-	--	-	--	-
....TRACHELOMONAS	--	-	15	5	--	-	270#	30	--	-
PYRRHOPHYTA (FIRE ALGAE)										
.DINOPHYCEAE										
..PERIDINIALES										
...GLENODINIACEAE										
....GLENODINIUM	30	2	--	-	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

06327850 GLENDIVE CREEK NEAR GLENDIVE, MT

LOCATION.--Lat 47°07'16", long 104°39'51", in SE¼NW¼NW¼ sec.29, T.16 N., R.56 E., Dawson County, Hydrologic Unit 10100004, on frontage road bridge, 1.2 mi (1.9 km) east of Glendive, and 2.4 mi (3.9 km) upstream from mouth.

DRAINAGE AREA.--300 mi² (778 km²).

PERIOD OF RECORD.--Water years 1978 to current year.

REMARKS.--Scheduled samplings were not possible during periods of no flow.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)
OCT 24...	0900	E.50	3	2270	9.0	11.0	6.0	10.8	96	70	0	16
MAR 29...	1500	26	0	990	8.1	5.5	5.5	11.2	97	150	0	33
APR 12...	1800	124	70	708	8.1	.0	3.0	12.8	103	120	0	27
MAY 18...	1000	1.7	0	2720	8.8	12.0	10.5	10.4	100	210	0	31
JUL 12...	0900	11	10	1260	8.7	17.5	18.5	--	--	--	--	--
AUG 16...	1200	E.03	0	3000	9.1	28.0	26.5	8.5	113	150	0	11
SEP 19...	0930	E.10	0	2910	9.1	13.0	10.5	9.8	95	69	0	15

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	BROMIDE DIS-SOLVED (MG/L AS BR) (71870)	IODIDE, DIS-SOLVED (MG/L AS I) (71865)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)
OCT 24...	7.2	560	29	5.0	750	480	8.6	.8	.2	7.0	4.9	1540
MAR 29...	16	170	6.1	6.1	180	310	4.0	.2	.0	.00	5.6	654
APR 12...	12	140	5.6	4.0	130	270	2.5	.2	.0	.00	5.4	540
MAY 18...	33	600	18	7.8	640	810	12	.7	.1	.00	6.3	1890
JUL 12...	--	--	--	--	410	--	--	--	--	--	--	--
AUG 16...	30	700	25	7.2	1010	670	23	1.3	--	--	6.3	2060
SEP 19...	7.7	700	37	6.2	1030	580	12	1.4	.2	.01	1.5	1940

DATE	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C) (00689)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
OCT 24...	2.09	2.08	.02	.01	.35	.36	.04	6.5	6.9	.7	560	70
MAR 29...	.89	45.9	.35	.08	1.2	1.3	.35	--	9.4	2.9	160	340
APR 12...	.73	181	1.0	.03	3.0	3.0	1.2	--	12	56	150	130
MAY 18...	2.57	8.68	.05	.05	.55	.60	.04	--	--	--	570	50
JUL 12...	--	--	.02	.74	18	19	1.4	--	--	--	--	--
AUG 16...	2.80	.17	.00	.02	.84	.86	.10	--	--	--	1000	580
SEP 19...	2.64	.52	.16	.04	.74	.78	.04	--	16	.9	890	180

06327850 GLENDIVE CREEK NEAR GLENDIVE, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)
OCT												
24...	0900	2	1	0	0	1	1	0	0	8	8	370
APR												
12...	1800	12	1	10	0	0	0	80	0	130	4	64000
MAY												
18...	1000	1	1	0	0	0	0	0	0	8	4	860

DATE	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
OCT												
24...	0	0	40	10	.4	.0	4	7	0	0	20	10
APR												
12...	52	0	1500	10	--	.1	120	2	3	2	350	10
MAY												
18...	6	1	20	0	--	.6	7	4	1	1	--	10

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPER-ATURE (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70340)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT									
24...	0900	6.0	E.50	162	.22	--	--	--	99
MAR									
29...	1500	5.5	26	1120	79	75	93	100	--
APR									
12...	1800	3.0	124	4700	1570	--	--	--	94
MAY									
18...	1000	10.5	1.7	106	.49	--	--	--	--
JUL									
12...	0900	18.5	11	8200	244	--	--	--	95
AUG									
16...	1200	26.5	E.03	209	.02	--	--	--	--
SEP									
19...	0930	10.5	E.10	137	.04	--	--	--	--

06328000 DEER CREEK NEAR GLENDIVE, MT

LOCATION.--Lat 47°09'44", long 104°42'08", in NE¼NW¼ sec.12, T.16 N., R.55 E., Dawson County, Hydrologic Unit 10100004, at Montana Highway 16 bridge, 3.8 mi (6.1 km) northeast of Interstate Highway 94, and 4.0 mi (6.4 km) north of Glendive.

DRAINAGE AREA.--197.5 mi² (511.5 km²).

PERIOD OF RECORD.--Water years 1978 to current year.

REMARKS.--Scheduled samplings were not possible during periods of no flow.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)
MAR										
14...	1230	24	730	8.1	-6.0	.0	11.9	98	130	K12000
APR										
05...	1630	33	1800	8.1	-5.0	.0	12.2	89	K3	180
MAY										
10...	1310	17	2700	8.5	3.5	7.0	11.8	104	21	K11
JUN										
21...	1550	.48	2620	8.4	25.0	22.5	8.3	102	350	210
AUG										
08...	1045	.04	2720	8.5	23.0	25.0	9.4	122	K360	580

DATE	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)
MAR										
14...	160	29	33	19	100	3.4	8.5	160	0	130
APR										
05...	490	190	80	70	240	4.7	7.8	370	0	300
MAY										
10...	730	310	110	110	430	6.9	8.4	500	8	440
JUN										
21...	560	170	110	70	420	7.7	9.1	460	5	390
AUG										
08...	590	37	78	95	470	8.5	11	660	7	550

DATE	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)
MAR										
14...	2.0	230	5.7	.1	6.4	513	482	.70	33.2	.02
APR										
05...	4.7	660	10	.2	9.7	1270	1260	1.73	113	.31
MAY										
10...	2.6	1200	14	.3	3.0	2090	2130	2.84	95.9	.00
JUN										
21...	3.0	1100	16	.4	8.3	2420	1970	3.29	3.14	.05
AUG										
08...	3.4	1200	18	.4	8.6	2070	2210	2.82	.22	.02

06328000 DEER CREEK NEAR GLENDIVE, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, KJEL-DAHL, TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C) (00689)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
MAR 14...	.02	3.0	3.0	.17	.06	20	--	110	110
APR 05...	.05	.59	.64	.04	.02	7.3	.7	120	20
MAY 10...	.01	.38	.39	.01	.01	12	.7	170	10
JUN 21...	.01	.37	.38	.01	.00	9.1	--	300	0
AUG 08...	.01	.40	.41	.03	.02	12	.7	330	20

DATE	TIME	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)
MAR 14...	1230	60	2	1	0	0	0	0	2	--	20
JUN 21...	1550	20	0	0	100	100	0	0	8	0	0

DATE	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO) (01037)	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	LITHIUM TOTAL RECOV-ERABLE (UG/L AS LI) (01132)	LITHIUM DIS-SOLVED (UG/L AS LI) (01130)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)
MAR 14...	0	6	0	19	11	30	0	20	20	140	30
JUN 21...	0	3	1	2	4	50	0	70	50	20	0

DATE	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	MOLYB-DENUM, TOTAL RECOV-ERABLE (UG/L AS MO) (01062)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO) (01060)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	VANA-DIUM, DIS-SOLVED (UG/L AS V) (01085)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
MAR 14...	.5	.0	0	0	14	0	1	0	2.4	30	20
JUN 21...	.1	.0	0	0	5	4	0	1	.0	20	10

DATE	TIME	ARSENIC TOTAL IN BOT-TOM MA-TERIAL (UG/G AS AS) (01003)	BARIUM, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS BA) (01008)	BERYL-LIUM, RECOV. FM BOT-TOM MA-TERIAL (UG/G) (01013)	CADMIUM RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CD) (01028)	CHRO-MIUM, RECOV. FM BOT-TOM MA-TERIAL (UG/G) (01029)	COBALT, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CO) (01038)	COPPER, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CU) (01043)
MAR 14...	1230	77	88	1	0	2	0	6
JUN 21...	1550	12	80	0	0	5	0	12

06328000 DEER CREEK NEAR GLENDIVE, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	LEAD, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS PB) (01052)	MANGA-NESE, RECOV. FM BOT-TOM MA-TERIAL (UG/G) (01053)	MERCURY RECOV. FM BOT-TOM MA-TERIAL (UG/G AS HG) (71921)	MOLYB-DENUM, RECOV. FM BOT-TOM MA-TERIAL (UG/G) (01063)	NICKEL, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS NI) (01068)	SELE-NIUM, TOTAL IN BOT-TOM MA-TERIAL (UG/G) (01148)	ZINC, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS ZN) (01093)
MAR							
14...	0	550	.20	0	20	0	12
JUN							
21...	10	460	.01	0	0	0	27

RADIOCHEMICAL ANALYSES, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT) (80030)	GROSS ALPHA, DIS-SOLVED (PCI/L AS U-NAT) (01515)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT) (80040)	GROSS ALPHA, SUSP. TOTAL (PCI/L AS U-NAT) (01516)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137) (03515)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137) (03516)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90) (80050)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/YT-90) (80060)
MAR									
14...	1230	<8.5	<5.8	7.1	4.8	12	5.0	11	4.7
JUN									
21...	1550	<34	<23	<.4	<.3	<12	.5	<11	.5

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPER-ATURE (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)
MAR					
14...	1230	.0	24	179	12
APR					
05...	1630	.0	33	55	4.9
MAY					
10...	1310	7.0	17	55	2.5
JUN					
21...	1550	22.5	.48	51	.07
AUG					
08...	1045	25.0	.04	137	.01

PARTICLE-SIZE DISTRIBUTION OF SURFACE BED MATERIAL, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	BED MAT. FALL DIAM. % FINER THAN .062 MM (80158)	BED MAT. FALL DIAM. % FINER THAN .125 MM (80159)	BED MAT. FALL DIAM. % FINER THAN .250 MM (80160)	BED MAT. FALL DIAM. % FINER THAN .500 MM (80161)	BED MAT. FALL DIAM. % FINER THAN 1.00 MM (80162)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM (80173)	BED MAT. SIEVE DIAM. % FINER THAN 64.0 MM (80174)
MAR												
14...	1230	2	3	6	9	15	21	29	40	62	90	100
JUN												
21...	1550	7	20	61	93	98	99	100	--	--	--	--

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

PERIPHYTON

DATE	TIME	LENGTH OF EXPO-SURE (DAYS) (00022)	PERI-PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M (00573)	PERI-PHYTON BIOMASS ASH WEIGHT G/SQ M (00572)	CHLOR-A PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2) (70957)	CHLOR-B PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2) (70958)	BIOMASS CHLORO-PHYLL RATIO PERI-PHYTON (UNITS) (70950)
APR							
05...	1630	22	.000	.000	.000	.000	.00

06328000 DEER CREEK NEAR GLENDIVE, MT--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

PHYTOPLANKTON

DATE	MAR 14,79	APR 5,79	MAY 10,79	JUN 21,79	AUG 8,79
TIME	1230	1630	1310	1550	1045
TOTAL CELLS/ML	700	330	190	240	350
DIVERSITY: DIVISION	1.1	0.8	1.5	2.0	1.1
.CLASS	1.1	0.8	1.5	2.0	1.1
..ORDER	1.6	0.8	1.8	2.0	1.3
...FAMILY	1.6	0.9	1.8	2.2	1.3
....GENUS	1.6	0.9	0.0	2.2	2.0

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)										
.CHLOROPHYCEAE										
..CHLOROCOCCALES										
...OOCYSTACEAE										
....ANKISTRODESMUS	--	-	29	9	--	-	26	11	78#	22
...SCENEDESMACEAE										
....SCENEDESMUS	--	-	--	-	29#	15	--	-	--	-
..VOLVOCALES										
...CHLAMYDOMONADACEAE	--	-	--	-	14	8	--	-	--	-
....CHLAMYDOMONAS	--	-	--	-	--	-	--	-	26	7
CHRYSOPHYTA										
.BACILLARIOPHYCEAE										
..CENTRALES										
...COSCINODISCACEAE										
....CYCLOTELLA	100	14	--	-	--	-	--	-	--	-
..PENNALES										
...CYMBELLACEAE										
....CYMBELLA	--	-	--	-	--	-	26	11	--	-
...FRAGILARIACEAE										
....SYNEDRA	--	-	14	4	--	-	--	-	--	-
...NAVICULACEAE										
....NAVICULA	50	7	--	-	--	-	--	-	--	-
....PINNULARIA	--	-	14	4	--	-	--	-	--	-
...NITZSCHIACEAE										
....NITZSCHIA	--	-	--	-	--	-	51#	21	13	4
...TABELLARIACEAE										
....TABELLARIA	--	-	--	-	72#	38	--	-	--	-
CRYPTOPHYTA (CRYPTOMONADS)										
.CRYPTOPHYCEAE										
..CRYPTOMONADALES										
...CRYPTOMONADACEAE										
....CRYPTOMONAS	--	-	--	-	--	-	26	11	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)										
.CYANOPHYCEAE										
..CHROOCOCCALES										
...CHROOCOCCACEAE										
....AGMENELLUM	--	-	--	-	--	-	--	-	100#	30
....ANACYSTIS	--	-	--	-	--	-	100#	42	130#	37
....COCCOCHLORIS	50	7	--	-	--	-	--	-	--	-
..HORMOGONALES										
...NOSTOCACEAE										
....ANABAENA	450#	64	--	-	--	-	--	-	--	-
...OSCILLATORIACEAE										
....OSCILLATORIA	--	-	270#	83	--	-	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)										
.EUGLENOPHYCEAE										
..EUGLENALES										
...EUGLENACEAE										
....LEPOCINCLIS	--	-	--	-	14	8	--	-	--	-
....TRACHELOMONAS	50	7	--	-	57#	31	--	-	*	0
PYRRHOPHYTA (FIRE ALGAE)										
.DINOPHYCEAE										
..PERIDINIALES										
...GLENODINIACEAE										
....GLENODINIUM	--	-	--	-	--	-	13	5	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

06329000 COTTONWOOD CREEK NEAR INTAKE, MT

LOCATION.--Lat 47°14'50", long 104°18'15", in E½ sec.14, R.58 E., T.17 N., Wibaux County, Hydrologic Unit 10100004, 16.2 mi (26.1 km) southeast of Intake, 26 mi (41.8 km) north of Wibaux.

DRAINAGE AREA.--85.3 mi² (221 km²).

PERIOD OF RECORD.--Water years 1978 to current year.

REMARKS.--Scheduled samplings were not possible during periods of no flow.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L) (00310)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)
NOV												
16...	1200	E.05	0	4380	8.3	-3.0	.5	11.1	83	--	1000	520
DEC												
15...	1000	E.10	0	4400	7.7	-2.0	.0	4.9	36	--	1200	490
MAR												
23...	1000	27	3	1080	7.9	.0	.5	11.1	83	3.8	300	150
APR												
12...	1300	21	70	1530	8.1	.0	2.0	11.0	87	--	420	210
MAY												
17...	1100	.96	3	4450	8.3	14.0	15.0	8.6	92	--	1300	750
JUN												
14...	1200	.09	1	5180	8.4	22.0	19.0	10.4	120	--	1300	770
JUL												
11...	1330	.07	10	3900	8.7	27.0	23.5	9.0	114	--	780	450
AUG												
15...	1130	.01	0	3980	8.9	23.0	19.0	11.4	132	--	480	130

DATE	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	BROMIDE DIS-SOLVED (MG/L AS BR) (71870)	IODIDE, DIS-SOLVED (MG/L AS I) (71865)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)
NOV												
16...	130	170	770	10	12	500	2100	15	.4	--	--	4.6
DEC												
15...	170	180	800	10	17	680	2200	3.3	.5	.2	.01	13
MAR												
23...	49	42	120	3.0	11	150	390	3.4	.1	.0	.00	7.7
APR												
12...	56	67	180	3.8	6.7	210	580	3.3	.1	--	--	7.6
MAY												
17...	170	220	720	8.6	11	5[illegible]0	2100	8.5	.3	--	--	1.6
JUN												
14...	120	240	910	11	12	520	2700	7.3	.3	.1	.01	.0
JUL												
11...	66	150	760	12	11	330	1900	8.8	.4	--	--	.5
AUG												
15...	62	80	750	15	11	350	1700	22	.4	--	--	.3

06329000 COTTONWOOD CREEK NEAR INTAKE, MT -Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, KJEL-DAHL, TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C) (00689)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
NOV												
16...	3500	4.76	.47	.01	.01	.70	.71	.03	--	--	890	30
DEC												
15...	3790	5.15	1.02	.02	.05	.66	.71	.04	9.3	.6	900	80
MAR												
23...	714	.97	52.1	.24	.51	.99	1.5	.18	20	.8	230	170
APR												
12...	1030	1.40	56.4	.07	.23	.76	.99	.08	--	--	350	100
MAY												
17...	3580	4.87	9.28	.02	.02	.79	.81	.03	--	--	990	20
JUN												
14...	4300	5.85	1.04	.00	.02	.98	1.0	.02	22	.6	1300	30
JUL												
11...	3120	4.24	.59	.05	.02	.68	.70	.03	--	--	800	20
AUG												
15...	2840	3.86	.08	.01	.01	.61	.62	.03	--	--	930	20

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)
MAR												
23...	1000	2	2	0	0	0	1	10	0	9	0	630
JUN												
14...	1200	8	1	0	0	1	1	10	0	2	1	140

DATE	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
MAR												
23...	27	4	90	80	.7	.3	4	1	1	0	30	10
JUN												
14...	7	2	40	20	.3	.4	7	7	0	0	20	20

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPER-ATURE (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)
NOV					
16...	1200	.5	E.05	33	.00
DEC					
15...	1000	.0	E.10	122	.03
MAR					
23...	1000	.5	27	18	1.3
APR					
12...	1300	2.0	21	38	2.2
JUN					
14...	1200	19.0	.09	12	.00
JUL					
11...	1330	23.5	.07	7	.00
AUG					
15...	1130	19.0	.01	6	.00

06329200 BURNS CREEK NEAR SAVAGE, MT

LOCATION.--Lat 47°22'20", long 104°25'46", near center of west line of sec.26, T.19 N., R.57 E., Richland County, Hydrologic Unit 10100004, on right bank 1,000 ft (305 m) upstream from bridge on State Highway 16, 1 mi (2 km) upstream from mouth, and 7 mi (11 km) southwest of Savage.

DRAINAGE AREA.--233 mi² (603 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1957 to September 1967, September 1975 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 2,000 ft (610 m), from topographic map.

REMARKS.--Water-discharge records fair except those for winter period, which are poor. Minor diversions for irrigation upstream.

AVERAGE DISCHARGE.--14 years (1958-67, 1976-79), 7.36 ft³/s (0.208 m³/s), 5,330 acre-ft/yr (6.57 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,100 ft³/s (59.5 m³/s) Mar. 20, 1960, gage height, 5.31 ft (1.619 m), from floodmarks, from rating curve extended above 500 ft³/s (14.2 m³/s) on basis of slope-area measurement of peak flow; maximum gage height, 5.40 ft (1.646 m) Mar. 28, 1979 (backwater from ice); no flow at times most years.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 25 ft³/s (0.71 m³/s) and maximums (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 17	0930	unknown		a4.82	1.469	Apr. 10	0415	*623	17.6	4.40	1.341
Mar. 28	0430	unknown		a*5.40	1.646						

a-backwater from ice jams.

Minimum daily discharge, 1.9 ft³/s (0.054 m³/s) Mar. 3.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.5	2.0	.70	.42	.25	.20	49	29	5.7	4.6	1.8	.64
2	2.0	2.0	.62	.45	.24	.20	40	27	5.7	4.2	1.2	.56
3	2.0	2.0	.51	.44	.26	.19	35	23	5.0	3.6	1.1	.56
4	2.0	2.2	.58	.43	.31	2.0	32	20	4.6	3.2	.95	.56
5	1.6	2.2	.62	.42	.50	20	26	20	4.2	2.7	.84	.43
6	1.4	2.0	.60	.44	.40	23	27	20	3.9	2.3	.95	.59
7	1.4	2.0	.56	.45	.35	26	37	25	3.6	2.1	.84	.43
8	1.4	2.0	.56	.46	.30	27	92	26	3.0	1.8	.84	.48
9	1.4	1.7	.58	.46	.26	28	326	26	3.3	1.7	.84	.48
10	1.4	1.6	.66	.45	.27	30	568	22	3.5	1.6	.74	.56
11	1.4	1.4	.82	.45	.26	25	290	21	2.7	1.6	.74	.64
12	1.4	1.3	1.2	.44	.24	28	154	19	3.6	1.6	.74	.74
13	1.4	1.5	.90	.41	.24	31	100	16	3.0	1.6	.74	.84
14	1.4	1.5	1.0	.39	.25	35	85	17	2.2	.95	.74	.73
15	1.4	1.5	.90	.37	.24	32	69	15	2.2	.95	.84	.73
16	1.4	1.5	.82	.36	.22	50	98	14	2.2	.95	.84	.64
17	1.4	1.4	.74	.36	.23	300	330	13	2.2	1.2	.84	.64
18	1.4	1.3	.71	.37	.24	250	305	13	2.2	1.2	.74	.46
19	1.4	1.2	.66	.40	.25	185	197	13	2.2	1.2	.64	.48
20	1.4	1.1	.64	.43	.27	145	131	11	2.7	1.1	.64	.48
21	1.4	1.2	.74	.46	.27	120	94	11	2.2	.95	.64	.48
22	1.4	1.2	.70	.44	.26	94	74	9.5	3.3	.84	.64	.48
23	1.4	1.1	.68	.42	.25	81	65	9.0	5.0	.95	.64	.53
24	1.6	1.1	.62	.40	.26	107	60	8.5	4.6	1.1	.48	.56
25	1.6	1.1	.60	.39	.40	160	54	7.5	6.5	1.4	.56	.64
26	2.0	1.1	.56	.37	.32	260	47	7.0	6.1	3.0	.84	.68
27	2.0	1.1	.54	.34	.25	330	43	6.5	5.3	2.0	.84	.66
28	2.0	1.0	.51	.32	.23	400	39	6.1	5.3	1.6	1.1	.72
29	2.0	.92	.47	.30	---	160	35	7.0	4.6	2.0	1.1	.73
30	2.0	.81	.44	.28	---	71	31	7.5	5.0	2.5	.95	.71
31	2.0	---	.40	.26	---	67	---	7.0	---	2.5	.74	---
TOTAL	50.7	44.03	20.66	12.38	7.82	3105.59	3553	478.6	115.4	58.99	26.13	17.68
MEAN	1.64	1.47	.67	.40	.28	100	118	15.4	3.85	1.90	.84	.59
MAX	2.5	2.2	1.2	.46	.50	400	568	29	6.5	4.6	1.8	.84
MIN	1.4	.81	.40	.26	.22	.19	26	6.1	2.2	.84	.48	.39
AC-FT	101	87	41	25	16	6160	7050	949	229	117	52	35

CAL YR 1978 TOTAL 5342.03 MEAN 14.6 MAX 700 MIN .01 AC-FT 10600
WTR YR 1979 TOTAL 7490.48 MEAN 20.5 MAX 568 MIN .19 AC-FT 14860

06329200 BURNS CREEK NEAR SAVAGE, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1976 to September 1979 (discontinued).

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L) (00310)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)
OCT												
05...	1200	1.6	3	1580	8.4	10.0	9.5	10.1	94	--	490	100
NOV												
15...	1100	1.8	0	1700	8.3	-5.0	.5	12.6	93	--	520	7
DEC												
14...	1030	.97	3	1750	8.2	2.0	.0	11.6	86	--	520	0
JAN												
12...	1000	.44	1	1750	7.5	-15.0	.0	10.4	76	--	560	77
FEB												
27...	1000	.25	70	1880	7.7	-10.0	.0	8.8	64	--	540	35
MAR												
22...	1900	89	0	760	8.1	6.0	1.0	11.6	87	--	250	86
APR												
10...	1100	534	3	440	8.0	6.0	2.5	11.5	92	3.5	170	61
MAY												
18...	1400	13	1	1860	8.4	18.0	15.0	9.4	100	--	640	200
JUN												
14...	2000	2.5	0	1780	8.4	25.0	21.5	8.3	101	--	540	100
JUL												
12...	1130	1.6	51	1570	8.5	17.5	19.5	7.3	85	--	410	0
AUG												
15...	1500	.85	0	1720	8.5	29.0	24.5	8.8	113	--	460	0
SEP												
20...	1130	.48	0	1780	8.5	17.0	15.0	9.3	98	--	450	0

DATE	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	BROMIDE DIS-SOLVED (MG/L AS BR) (71870)	IODIDE, DIS-SOLVED (MG/L AS I) (71865)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)
OCT												
05...	70	77	200	3.9	8.8	390	510	6.1	.6	.1	.00	11
NOV												
15...	72	82	200	3.8	7.7	510	430	9.1	.5	--	--	14
DEC												
14...	74	81	220	4.2	8.7	530	460	7.7	.5	.1	.00	15
JAN												
12...	85	85	240	4.4	9.2	480	530	7.5	.6	--	--	18
FEB												
27...	79	82	210	4.0	9.2	500	500	7.2	.5	--	--	15
MAR												
22...	39	36	62	1.7	8.4	160	200	3.6	.1	.0	.00	8.0
APR												
10...	32	22	28	.9	5.2	110	120	2.4	.1	.0	.00	7.3
MAY												
18...	91	100	210	3.6	8.4	440	620	7.2	.4	--	--	7.2
JUN												
14...	64	93	230	4.3	8.6	440	530	6.9	.5	.1	.00	8.8
JUL												
12...	48	70	220	4.7	9.0	430	450	7.3	.6	--	--	10
AUG												
15...	48	82	240	4.9	9.1	460	560	7.8	.6	--	--	13
SEP												
20...	48	79	250	5.2	10	480	540	7.1	.7	.1	.30	12

06329200 BURNS CREEK NEAR SAVAGE, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, KJEL-DAHL, TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C) (00689)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
OCT 05...	1120	1.52	4.84	.00	.01	.55	.56	.00	5.7	.3	430	20
NOV 15...	1120	1.52	5.44	.01	.01	.30	.31	.01	--	--	360	10
DEC 14...	1190	1.62	3.12	.02	.01	.21	.22	.03	3.8	.2	390	10
JAN 12...	1260	1.71	1.50	.04	.01	.21	.22	.02	--	--	340	20
FEB 27...	1200	1.63	.81	.05	.07	.30	.37	.02	--	--	300	40
MAR 22...	454	.62	109	.15	.04	.64	.68	.04	15	2.1	150	90
APR 10...	284	.39	409	.29	.05	1.6	1.6	.46	8.1	5.5	100	290
MAY 18...	1310	1.78	47.0	.01	.01	.34	.35	.01	--	--	330	10
JUN 14...	1210	1.65	6.17	.02	.01	.53	.54	.01	5.8	.4	300	10
JUL 12...	1070	1.46	4.62	.02	.00	.41	.41	.03	--	--	410	10
AUG 15...	1240	1.69	2.05	.00	.02	.31	.33	.03	--	--	510	10
SEP 20...	1220	1.66	1.58	.04	.01	.52	.53	.01	5.2	.3	430	<10

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)
OCT 05...	1200	2	1	0	0	0	0	0	0	4	1	520
APR 10...	1100	6	2	0	0	1	2	20	0	20	2	14000

DATE	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
OCT 05...	5	0	50	0	.2	.3	0	0	0	0	20	10
APR 10...	27	3	430	30	--	.2	15	6	1	0	80	10

06329200 BURNS CREEK NEAR SAVAGE, MT--Continued

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPER-ATURE (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT						
05...	1200	9.5	1.0	76	.33	--
NOV						
15...	1100	.5	1.8	40	.19	--
DEC						
14...	1030	.0	.97	91	.24	--
JAN						
12...	1000	.0	.44	13	.02	--
FEB						
27...	1000	.0	.25	28	.02	--
MAR						
22...	1900	1.0	89	135	32	97
APR						
10...	1100	2.5	534	916	1320	97
MAY						
16...	1400	15.0	13	62	2.2	--
JUN						
14...	2000	21.5	2.5	50	.20	--
JUL						
12...	1130	19.5	1.6	40	.17	--
AUG						
15...	1500	24.5	.85	111	.25	--
SEP						
20...	1130	15.0	.48	80	.10	--

06329500 YELLOWSTONE RIVER NEAR SIDNEY, MT

LOCATION.--Lat 47°40'42", long 104°09'22", in SW¼NE¼SW¼ sec.9, T.22 N., R.59 E., Richland County, Hydrologic Unit 10100004, on left bank at Montana-Dakota Utilities Company powerplant, 0.2 mi (0.3 km) downstream from bridge on State Highway 23, 2.5 mi (4.0 km) south of Sidney, 3.0 mi (4.8 km) downstream from Fox Creek, and 30 mi (48 km) upstream from mouth.

DRAINAGE AREA.--69,103 mi² (178,977 km²). Area at site 4.5 mi (7.2 km) upstream, 68,812 mi² (178,223 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1910 to September 1931 (published as "at Intake"), October 1933 to current year. If monthly figures of diversions to Lower Yellowstone Canal at Intake are added to records at this site, records equivalent to those published as Yellowstone River at Glendive (1898-1910, 1931-34) can be obtained. Monthly discharge only for some periods, published in WSP 1309. Monthly figures of diversions into Lower Yellowstone Canal prior to 1951 published in WSP 1309, 1951-60 published in WSP 1729, 1961-65 published in WSP 1916, 1966-70 published in WSP 2116, and 1971 to current year are published in annual reports.

GAGE.--Water-stage recorder. Datum of gage is 1,881.3 ft (573.42 m) National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Jan. 1, 1911, to Sept. 30, 1931, nonrecording gage at site 32 miles (51 km) upstream at different datum. Apr. 9, 1934, water-stage recorder at two sites within 500 ft (150 m) of highway bridge 0.2 mi (0.3 km) upstream and May 17, 1945, to Apr. 3, 1952, nonrecording gage on same bridge at datum 1.36 ft (0.415 m) higher. Apr. 4, 1952, to Nov. 19, 1967, water-stage recorder at site 4.5 mi (7.2 km) upstream at different datum.

REMARKS.--Water-discharge records good except those for winter period, which are poor. Some regulation on tributary streams. Diversion for irrigation of about 1,250,000 acres (5,060 km²) above station. Lower Yellowstone Project Main Canal diverts from left bank in NW¼ sec.36, T.18 N., R.56 E., at Lower Yellowstone diversion dam at Intake about 36.6 mi (58.9 km) upstream for irrigation of about 52,000 acres (210 km²) of which about one-third lies above station (see table below).

AVERAGE DISCHARGE.--67 years, 13,140 ft³/s (372.1 m³/s), 9,520,000 acre-ft/yr (11.7 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge observed, 159,000 ft³/s (4,500 m³/s) June 2, 1921, gage height, 12.6 ft (3.84 m), site and datum then in use; maximum gage height observed, 21.85 ft (6.660 m) Mar. 22, 1947, site and datum then in use (backwater from ice); minimum discharge, 470 ft³/s (13.3 m³/s) May 17, 1961, gage height, 2.73 ft (0.832 m), site and datum then in use.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 47,000 ft³/s (1,330 m³/s) Mar. 19; maximum gage height, 19.57 ft (5.965 m) Mar. 19 (backwater from ice jam); minimum daily, 3,900 ft³/s (110 m³/s) Nov. 21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12000	9200	9400	5600	5800	8400	16800	13100	29400	27700	11100	7430
2	11700	9610	9400	5400	5800	8300	15600	13000	29100	26900	10700	7130
3	11500	9610	9400	5200	6000	8500	14600	12900	24700	26600	10100	7060
4	11200	9730	8800	5200	6200	8800	14300	13200	21300	26100	9390	6830
5	11000	10100	8600	5000	6500	9000	13300	13800	18700	24200	8690	6730
6	10900	10100	8400	5200	6400	9400	12700	14500	17100	22200	8220	6570
7	10900	10200	8000	5400	6300	9900	12500	14500	16700	20900	7700	6350
8	10700	10100	7800	5600	6200	11000	12900	14200	18800	20100	7230	6100
9	10600	10200	7800	5800	6400	12000	14000	14500	19600	18600	6890	5850
10	10500	10600	8000	6000	6500	13000	15800	15300	22600	17200	6570	5790
11	10400	10700	8200	6000	6600	16500	16900	15600	19400	16700	6280	5610
12	10200	10800	8200	6000	6600	17000	17100	15400	18700	15700	6160	5490
13	10100	10600	8400	5800	6800	19000	16800	14500	19100	14800	6160	5490
14	10100	7000	8600	5800	6800	23500	16400	13400	17600	13800	5970	5550
15	10100	4800	9000	5800	6800	28500	16300	12500	19200	13000	5940	5640
16	10100	4400	9000	6000	6800	34000	15600	11400	23400	12600	6030	5790
17	10100	4300	8500	6200	6800	35000	15800	11400	23900	12200	6510	5820
18	10000	4200	8000	6400	7000	39000	16900	11100	23200	11700	7600	5820
19	9880	4100	7800	6600	7200	47000	16400	11500	28400	11100	7800	5790
20	9920	4000	8000	7000	7500	43000	15700	12400	26700	10500	7430	5700
21	9920	3900	8200	7100	7800	39000	15500	14500	27200	9880	7030	5580
22	9920	5000	8400	7000	8000	36000	15400	15400	31000	9390	6860	5430
23	9880	7000	8600	6800	8000	33000	15200	16300	32100	9390	6660	5370
24	9760	8000	8600	6600	8000	36000	14500	16600	30300	9280	6990	5340
25	9730	9400	8800	6600	8200	28000	13700	17200	28600	8940	7030	5250
26	9840	10000	8600	6400	8500	30000	13300	19400	27200	9390	7060	5190
27	9760	9800	8600	6200	8700	31000	13500	21600	26400	10600	7160	5160
28	9690	9600	8400	6000	8700	23000	13600	23200	26300	10100	7290	5250
29	9690	9600	7800	5900	---	21000	13600	25100	27700	9840	7670	5310
30	9500	9600	6800	5800	---	20000	13300	27900	28200	10100	7600	5460
31	7700	---	6200	5800	---	18000	---	32200	---	10300	7600	---
TOTAL	317290	246250	258700	186200	196900	715800	448000	497600	723000	470010	231620	175880
MEAN	10240	8208	8345	6006	7032	23090	14930	16050	24100	15160	7472	5863
MAX	12000	10800	9400	7100	8700	47000	17100	32200	32100	27700	11100	7430
MIN	7700	3900	6200	5000	5800	8300	12500	11100	16700	8940	5940	5160
AC-FT	629300	488400	513100	369300	390600	1420000	888600	987000	1434000	932300	459400	348900
(†)	0	0	0	0	0	0	0	4,680	18,580	20,840	16,120	12,610

CAL YR 1978	TOTAL	6718320	MEAN	18410	MAX	104000	MIN	3900	AC-FT	13330000	(†) 316,100
WTR YR 1979	TOTAL	4467250	MEAN	12240	MAX	47000	MIN	3900	AC-FT	8861000	(†) 72,830

† Diversions, in acre-feet, by Lower Yellowstone Canal, furnished by Water and Power Resources Service (formerly the Bureau of Reclamation).

06329500 YELLOWSTONE RIVER NEAR SIDNEY, MT--Continued
(National Stream Quality Accounting Network)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1948 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: January 1951 to current year.
WATER TEMPERATURES: January 1951 to current year.
SUSPENDED-SEDIMENT DISCHARGE: July 1972 to current year.

INSTRUMENTATION.--Temperature recorder April to November 1974, May to September 1975, July 1977 to current year.

REMARKS.--Prior to July 1972, sediment sampling and record computation under supervision of U.S. Army Corps of Engineers. Flow affected by ice during most of winter months. Ice flows and weak ice conditions prevented sediment sampling during Nov. 16 to Dec. 11.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,780 micromhos Jan. 14, 1951; minimum daily, 193 micromhos Aug. 15, 1964.
WATER TEMPERATURES: Maximum daily, 29.0°C July 23, 1960; minimum daily, 0.0°C on many days during winter periods.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 26,800 mg/L May 8, 1975; minimum daily mean, 8 mg/L Jan. 9, 1973.
SEDIMENT LOADS: Maximum daily, 3,030,000 tons (2,750,000 megagrams) May 8, 1975; minimum daily, 130 tons 118 megagrams) Jan. 9, 1975.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,220 micromhos April 6; minimum daily, 304 micromhos June 20.
WATER TEMPERATURES: Maximum, 27.0°C July 20-23; minimum, 0.0°C on many days during November to March.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 2,600 mg/L Mar. 26; minimum daily mean, 14 mg/L Feb. 14.
SEDIMENT LOADS: Maximum daily, 211,000 tons (191,000 megagrams) Mar. 26; minimum daily, 257 tons (233 megagrams Feb. 14.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE (DEG C) (00010)	TURBIDITY (JTU) (00070)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)
OCT										
04...	1300	11300	63	759	8.6	7.0	12.5	30	9.9	99
24...	1300	9020	3	840	8.7	15.5	8.5	1	10.4	97
NOV										
14...	1200	7000	0	820	8.3	-3.0	3.5	20	12.3	98
29...	1300	9600	85	926	8.1	-6.0	1.5	7	12.3	93
DEC										
13...	1500	8220	0	950	8.3	4.0	.5	2	12.3	90
20...	1400	8000	3	952	8.1	-5.0	.0	3	12.7	93
JAN										
10...	1500	5480	0	1070	7.8	-20.0	.0	3	11.9	86
30...	1545	5800	0	838	7.9	-12.5	.0	3	10.7	79
FEB										
15...	1300	6890	0	960	8.0	-25.0	.0	6	10.2	73
27...	1130	8700	3	920	8.1	-5.0	2.0	5	10.4	78
MAR										
06...	1200	11000	3	910	8.0	5.0	.0	4	10.4	76
16...	1300	39000	71	750	7.9	.0	.5	610	10.0	74
APR										
13...	1400	16800	0	928	8.3	2.0	4.5	230	11.1	93
29...	1600	13600	1	1130	8.3	8.0	10.0	80	10.3	97
MAY										
16...	1500	11500	0	998	8.5	25.0	15.0	--	8.9	96
30...	1500	27900	3	424	8.5	16.0	16.0	--	8.1	87
JUN										
13...	1300	19400	0	455	8.1	30.0	20.0	--	7.7	92
26...	1430	27300	2	394	8.2	20.5	20.0	--	7.9	92
JUL										
10...	1100	17300	1	544	8.4	19.0	22.5	--	7.8	96
25...	2000	9350	10	620	8.2	20.5	25.5	--	7.3	95
31...	1300	10600	0	665	8.5	27.0	22.5	--	7.5	92
AUG										
14...	1500	5970	2	766	8.4	21.5	18.5	--	8.6	97
SEP										
07...	1300	6350	1	802	8.5	26.0	19.5	--	8.2	95
18...	1200	5820	0	772	8.5	19.0	17.0	--	8.6	94

06329500 YELLOWSTONE RIVER NEAR SIDNEY, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	OXYGEN DEMAND, CHEMICAL (HIGH LEVEL) (MG/L) (00340)	COLIFORM, TOTAL, IMMED. (COLS. PER 100 ML) (31501)	COLIFORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)
OCT											
04...	27	K37	K8	K9	250	90	62	23	69	1.9	3.4
24...	22	K17	K8	K14	--	--	--	--	--	--	--
NOV											
14...	38	240	K14	48	290	120	68	30	76	1.9	3.8
29...	12	K18	K4	K24	--	--	--	--	--	--	--
DEC											
13...	23	22	K5	K8	320	130	75	32	90	2.2	4.8
20...	15	K12	<1	K1	--	--	--	--	--	--	--
JAN											
10...	--	47	K17	22	330	130	78	34	87	2.1	4.9
30...	15	97	K34	K24	--	--	--	--	--	--	--
FEB											
15...	18	88	32	24	300	120	71	29	76	1.9	4.0
27...	20	82	K27	K10	--	--	--	--	--	--	--
MAR											
08...	17	110	34	63	--	--	--	--	--	--	--
18...	34	K1100	350	190	200	91	46	21	73	2.2	5.2
APR											
13...	56	2200	K67	1600	--	--	--	--	--	--	--
29...	26	K20	110	K9	330	140	67	39	120	2.9	5.0
MAY											
16...	150	K31	K34	K13	300	140	71	30	95	2.4	4.0
30...	38	--	K24	96	--	--	--	--	--	--	--
JUN											
13...	23	K62	K74	110	150	55	35	14	37	1.3	2.5
26...	32	>800	120	60	--	--	--	--	--	--	--
JUL											
10...	15	K27	K32	93	200	86	39	24	40	1.2	3.0
25...	18	K72	120	110	--	--	--	--	--	--	--
31...	21	--	99	94	200	66	44	21	61	1.9	4.2
AUG											
14...	18	K10	K17	95	--	--	--	--	--	--	--
SEP											
07...	14	K60	<1	98	--	--	--	--	--	--	--
18...	22	K10	K13	K20	250	89	55	27	73	2.0	3.9

DATE	ALKALINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DISSOLVED (MG/L AS CO2) (00405)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	SOLIDS, SUSP. TOTAL, RESIDUE AT 110 DEG. C (MG/L) (70299)
OCT											
04...	160	--	210	11	.4	10	473	485	.64	14400	73
24...	--	--	--	--	--	--	552	--	.75	13400	8
NOV											
14...	170	--	250	19	.4	9.8	558	560	.76	10500	44
29...	--	--	--	--	--	--	656	--	.89	17000	21
DEC											
13...	190	--	300	18	.4	12	641	647	.87	14200	1
20...	200	--	--	--	--	--	618	--	.84	13300	16
JAN											
10...	200	--	310	18	.4	13	715	666	.97	10600	8
30...	--	--	--	--	--	--	580	--	.79	9080	8
FEB											
15...	180	--	260	18	.4	14	603	581	.82	11200	23
27...	--	--	--	--	--	--	595	--	.81	14000	20
MAR											
08...	170	--	--	--	--	--	574	--	.78	17000	6
18...	110	--	230	9.6	.3	7.1	455	459	.62	47900	726
APR											
13...	170	--	--	--	--	--	780	--	1.06	35400	458
29...	190	--	370	15	.4	9.6	792	740	1.08	29100	97
MAY											
16...	160	--	310	18	.4	7.6	669	632	.91	20800	168
30...	85	--	--	--	--	--	265	--	.36	20000	784
JUN											
13...	90	1.4	120	6.8	.8	9.3	284	280	.39	14900	154
26...	--	--	--	--	--	--	269	--	.37	19800	360
JUL											
10...	110	--	170	7.9	.3	10	349	360	.47	16300	36
25...	--	--	--	--	--	--	410	--	.56	10400	153
31...	130	--	200	10	.4	9.6	419	428	.57	12000	270
AUG											
14...	160	--	--	--	--	--	500	--	.68	8060	87
SEP											
07...	160	--	--	--	--	--	537	--	.73	9210	176
18...	160	--	240	12	.5	7.4	507	515	.69	7970	--

06329500 YELLOWSTONE RIVER NEAR SIDNEY, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, KJEL-DAHL, TOTAL (MG/L AS N) (00625)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C) (00689)
OCT											
04...	.00	--	.02	.60	.62	.33	.08	.00	4.1	--	--
24...	.08	--	.00	.40	.40	--	.03	--	--	--	--
NOV											
14...	.25	--	.02	.31	.33	.41	.02	.00	--	3.3	.2
29...	.53	--	.01	.44	.45	--	.02	--	3.5	--	--
DEC											
13...	.45	--	.02	.23	.25	.24	.02	.02	--	4.0	.1
20...	.52	--	.01	.20	.21	--	.01	--	.2	--	--
JAN											
10...	.63	--	.03	.37	.40	--	.03	.02	2.9	--	--
30...	.51	--	.14	.13	.27	--	.03	--	2.7	--	--
FEB											
15...	.53	--	.12	.20	.32	.28	.05	.04	2.5	--	--
27...	.55	--	.06	.23	.29	--	.05	--	4.7	--	--
MAR											
08...	.54	--	.07	.33	.40	--	.03	--	3.7	--	--
18...	.52	--	.17	1.5	1.7	--	.17	.07	--	7.3	--
APR											
13...	.28	--	.04	.90	.94	--	.26	--	8.8	--	--
29...	.22	--	.02	.53	.55	--	.09	.01	5.0	--	--
MAY											
16...	.05	--	.01	.54	.55	.23	.12	.00	5.0	--	--
30...	.34	--	.07	1.0	1.1	--	.43	--	15	--	--
JUN											
13...	.16	--	.01	.53	.54	.34	.23	.03	--	6.1	1.1
26...	.22	--	.03	.61	.64	--	.31	--	7.8	--	--
JUL											
10...	.04	--	.04	.34	.38	.12	.05	.01	5.1	--	--
25...	.05	--	.01	.56	.57	--	.05	--	5.8	--	--
31...	.12	--	.00	.68	.68	.60	.07	.00	7.9	--	--
AUG											
14...	.05	--	.01	.48	.49	--	.02	--	6.0	--	--
SEP											
07...	.02	--	.02	.95	.97	--	.11	--	6.3	--	--
18...	.00	.02	.00	.54	.54	.58	.04	.00	--	3.3	.4

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)
NOV									
14...	1200	4	5	0	0	5	0	0	0
DEC									
13...	1500	4	4	0	60	1	2	10	0
MAR									
18...	1300	5	3	200	0	1	3	20	0
JUN									
13...	1300	4	3	100	0	0	1	10	0
SEP									
18...	1200	6	5	0	60	0	<1	10	10

DATE	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO) (01037)	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)
NOV									
14...	0	0	3	1	540	300	19	0	30
DEC									
13...	0	<3	3	2	190	<10	22	3	10
MAR									
18...	6	0	27	1	18000	150	23	5	380
JUN									
13...	4	1	11	1	4800	60	13	0	140
SEP									
18...	0	<3	1	2	890	<10	0	0	50

06329500 YELLOWSTONE RIVER NEAR SIDNEY, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOVERABLE (UG/L AS HG) (71900)	MERCURY DISSOLVED (UG/L AS HG) (71890)	SELENIUM, TOTAL (UG/L AS SE) (01147)	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	SILVER, TOTAL RECOVERABLE (UG/L AS AG) (01077)	SILVER, DISSOLVED (UG/L AS AG) (01075)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)	ZINC, DISSOLVED (UG/L AS ZN) (01090)
NOV 14...	40	.5	.0	2	2	0	0	0	10
DEC 13...	4	.6	--	3	3	0	0	10	<3
MAR 18...	40	.5	.2	2	1	0	0	90	20
JUN 13...	0	--	.1	1	1	0	0	40	10
SEP 18...	5	.5	.0	1	1	0	0	10	<3

PESTICIDE ANALYSES, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	PCB, TOTAL (UG/L) (39516)	PCB, TOTAL IN BOTTOM MATERIAL (UG/KG) (39519)	ALDRIN, TOTAL (UG/L) (39330)	ALDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG) (39333)	CHLORDANE, TOTAL (UG/L) (39350)	CHLORDANE, TOTAL IN BOTTOM MATERIAL (UG/KG) (39351)	DDD, TOTAL (UG/L) (39360)	DDD, TOTAL IN BOTTOM MATERIAL (UG/KG) (39363)	DDE, TOTAL (UG/L) (39365)	DDE, TOTAL IN BOTTOM MATERIAL (UG/KG) (39368)
NOV 14...	1200	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MAR 08...	1200	ND	--	ND	--	ND	--	ND	--	ND	--
MAY 16...	1500	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

DATE	DDT, TOTAL (UG/L) (39370)	DDT, TOTAL IN BOTTOM MATERIAL (UG/KG) (39373)	DIAZINON, TOTAL (UG/L) (39570)	DIAZINON, TOTAL IN BOTTOM MATERIAL (UG/KG) (39571)	DIELDRIN TOTAL (UG/L) (39380)	DIELDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG) (39383)	ENDRIN, TOTAL (UG/L) (39390)	ENDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG) (39393)	ETHION, TOTAL (UG/L) (39398)	ETHION, TOTAL IN BOTTOM MATERIAL (UG/KG) (39399)
NOV 14...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MAR 08...	ND	--	ND	--	ND	--	ND	--	ND	--
MAY 16...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

DATE	HEPTACHLOR, TOTAL (UG/L) (39410)	HEPTACHLOR, TOTAL IN BOTTOM MATERIAL (UG/KG) (39413)	HEPTACHLOR EPOXIDE TOTAL (UG/L) (39420)	HEPTACHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG) (39423)	LINDANE TOTAL (UG/L) (39340)	LINDANE TOTAL IN BOTTOM MATERIAL (UG/KG) (39343)	MALATHION, TOTAL (UG/L) (39530)	MALATHION, TOTAL IN BOTTOM MATERIAL (UG/KG) (39531)	METHOXYCHLOR, TOTAL (UG/L) (39480)	METHOXYCHLOR, TOT. IN BOTTOM MATL. (UG/KG) (39481)
NOV 14...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MAR 08...	ND	--	ND	--	ND	--	ND	--	ND	--
MAY 16...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

DATE	METHYL PARATHION, TOTAL (UG/L) (39600)	METHYL PARATHION, TOT. IN BOTTOM MATL. (UG/KG) (39601)	METHYL TRITHION, TOTAL (UG/L) (39790)	METHYL TRITHION, TOT. IN BOTTOM MATL. (UG/KG) (39791)	PARATHION, TOTAL (UG/L) (39540)	PARATHION, TOTAL IN BOTTOM MATERIAL (UG/KG) (39541)	TOXAPHENE, TOTAL (UG/L) (39400)	TOXAPHENE, TOTAL IN BOTTOM MATERIAL (UG/KG) (39403)	TOTAL TRITHION (UG/L) (39786)	TRITHION, TOTAL IN BOTTOM MATERIAL (UG/KG) (39787)
NOV 14...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MAR 08...	ND	--	ND	--	ND	--	ND	--	ND	--
MAY 16...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

06329500 YELLOWSTONE RIVER NEAR SIDNEY, MT--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	742	822	903	881	873	885	1100	1120	390	342	652	725
2	752	825	869	891	883	891	1140	1120	369	340	641	761
3	751	808	848	916	895	895	1160	1130	413	341	672	769
4	752	814	842	947	905	899	1180	1130	470	342	778	754
5	756	814	843	973	916	845	1200	1090	519	351	808	748
6	759	814	868	1000	914	891	1220	1040	540	344	782	739
7	769	825	889	1040	926	893	1200	1020	564	384	759	738
8	767	827	908	1050	935	893	1200	1010	560	390	766	737
9	768	814	925	1040	939	896	1180	1010	511	397	755	740
10	770	819	935	1040	935	886	1120	1010	410	427	743	739
11	771	797	944	1030	928	865	1070	961	355	422	740	738
12	790	794	958	1010	924	837	1120	953	377	451	731	741
13	800	806	960	1000	910	823	1130	931	420	456	736	750
14	808	804	950	985	902	763	1110	942	458	463	751	762
15	808	818	923	967	895	697	1090	983	480	481	767	780
16	810	828	902	943	895	666	1130	1000	469	487	766	764
17	820	868	892	919	896	699	1190	991	391	499	765	760
18	821	890	899	901	890	716	1150	990	315	503	752	761
19	818	900	899	887	892	741	1120	984	338	515	735	769
20	820	905	911	878	890	727	1170	963	304	527	719	771
21	822	930	902	876	892	783	1210	937	325	541	699	779
22	819	1000	899	873	883	842	1210	871	360	561	690	780
23	822	963	900	864	869	885	1160	776	348	572	678	781
24	820	954	900	861	872	912	1130	718	350	595	699	787
25	820	940	864	859	882	935	1130	715	368	619	702	780
26	826	951	866	855	878	917	1150	719	380	612	693	789
27	827	975	859	852	874	943	1140	670	390	615	688	801
28	831	967	846	852	875	975	1110	614	375	630	684	805
29	829	948	888	854	---	1020	1130	536	370	631	694	811
30	830	931	853	859	---	1060	1130	451	339	629	707	813
31	829	---	862	866	---	1090	---	422	---	630	723	---
MEAN	798	872	895	928	899	865	1150	898	409	487	725	766

WTR YR 1979 MEAN 807 MAX 1220 MIN 304

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	16.5	15.5	16.0	7.0	6.0	6.5	.0	.0	.0	.0	.0	.0
2	16.0	14.0	15.0	7.5	6.5	7.0	.0	.0	.0	.0	.0	.0
3	14.0	13.0	13.5	7.5	7.0	7.5	.0	.0	.0	.0	.0	.0
4	13.5	12.0	12.5	7.5	7.0	7.5	.0	.0	.0	.0	.0	.0
5	11.5	11.0	11.0	7.0	6.0	6.5	.0	.0	.0	.0	.0	.0
6	11.5	10.5	11.0	5.5	5.0	5.5	.0	.0	.0	.0	.0	.0
7	12.0	10.5	11.0	6.5	5.0	6.0	.0	.0	.0	.0	.0	.0
8	12.0	11.0	11.5	7.5	6.5	7.0	.0	.0	.0	.0	.0	.0
9	12.5	11.0	12.0	7.5	5.0	6.5	.0	.0	.0	.0	.0	.0
10	13.0	11.5	12.5	5.0	2.5	3.5	.0	.0	.0	.0	.0	.0
11	13.0	12.0	12.5	2.5	1.5	2.0	.0	.0	.0	.0	.0	.0
12	12.5	11.0	12.0	3.0	1.0	2.0	.0	.0	.0	.0	.0	.0
13	11.0	10.0	10.5	.5	.0	.5	.0	.0	.0	.0	.0	.0
14	10.0	9.0	9.5	.5	.0	.0	.0	.0	.0	.0	.0	.0
15	10.5	9.0	10.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
16	11.0	9.5	10.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
17	11.0	10.0	10.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
18	10.5	10.0	10.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
19	11.5	10.0	11.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
20	11.5	10.5	11.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
21	11.5	10.5	11.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
22	10.0	9.5	9.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
23	9.5	8.5	9.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
24	9.5	9.0	9.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
25	9.0	8.0	8.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
26	8.5	7.5	8.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
27	8.0	7.5	8.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
28	8.5	8.0	8.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
29	8.5	8.0	8.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
30	8.5	7.5	8.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
31	7.5	7.0	7.0	---	---	---	.0	.0	.0	.0	.0	.0
MONTH	16.5	7.0	10.5	7.5	.0	2.5	.0	.0	.0	.0	.0	.0

06329500 YELLOWSTONE RIVER NEAR SIDNEY, MT--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	.0	.0	.0	.0	.0	.0	---	---	---	11.0	9.5	10.5
2	.0	.0	.0	.0	.0	.0	---	---	---	12.0	9.5	10.5
3	.0	.0	.0	.0	.0	.0	4.0	2.0	3.0	11.0	10.0	10.5
4	.0	.0	.0	.0	.0	.0	4.0	3.0	3.5	10.0	9.5	10.0
5	.0	.0	.0	.0	.0	.0	3.0	1.5	2.5	10.5	9.5	10.0
6	.0	.0	.0	.0	.0	.0	4.0	2.0	3.0	11.0	10.0	10.5
7	.0	.0	.0	.0	.0	.0	4.0	3.5	3.5	11.0	10.0	10.5
8	.0	.0	.0	.0	.0	.0	5.5	3.0	4.5	10.5	9.0	10.0
9	.0	.0	.0	.0	.0	.0	7.5	5.0	6.0	9.5	8.5	9.0
10	.0	.0	.0	.0	.0	.0	6.5	5.5	6.0	8.5	8.0	8.0
11	.0	.0	.0	.0	.0	.0	6.0	5.5	6.0	9.5	7.0	8.0
12	.0	.0	.0	.0	.0	.0	5.5	4.5	5.5	11.5	9.0	10.0
13	.0	.0	.0	.0	.0	.0	5.0	4.0	4.5	12.0	10.5	11.0
14	.0	.0	.0	.0	.0	.0	6.0	4.0	5.0	13.5	10.5	12.0
15	.0	.0	.0	.0	.0	.0	7.5	5.0	6.0	15.0	12.0	13.5
16	.0	.0	.0	.0	.0	.0	9.0	6.0	7.5	17.5	14.0	16.0
17	.0	.0	.0	---	---	---	11.0	8.5	9.5	17.5	15.0	16.0
18	.0	.0	.0	---	---	---	13.5	10.5	12.0	16.0	14.0	15.0
19	.0	.0	.0	---	---	---	12.5	11.0	11.5	15.5	15.0	15.0
20	.0	.0	.0	---	---	---	11.5	10.0	10.5	16.5	14.5	15.5
21	.0	.0	.0	---	---	---	11.5	10.0	11.0	17.0	14.5	15.5
22	.0	.0	.0	---	---	---	11.0	10.0	10.5	16.5	15.0	15.5
23	.0	.0	.0	---	---	---	10.0	8.0	9.0	18.0	15.0	16.5
24	.0	.0	.0	---	---	---	8.0	7.5	7.5	19.0	16.5	17.5
25	.0	.0	.0	---	---	---	8.0	7.0	7.5	20.5	18.0	19.0
26	.0	.0	.0	---	---	---	9.0	7.5	8.0	21.0	19.0	20.0
27	.0	.0	.0	---	---	---	10.0	8.0	9.0	21.0	19.5	20.5
28	.0	.0	.0	---	---	---	10.0	8.5	9.0	20.5	18.5	20.0
29	---	---	---	---	---	---	10.0	8.0	9.0	18.5	16.5	17.5
30	---	---	---	---	---	---	10.5	9.0	10.0	17.0	16.0	16.5
31	---	---	---	---	---	---	---	---	---	16.0	15.0	15.5
MONTH	.0	.0	.0	.0	.0	.0	13.5	1.5	7.0	21.0	7.0	13.5
		JUNE			JULY			AUGUST			SEPTEMBER	
1	15.0	13.5	14.5	23.0	21.5	22.0	25.5	23.0	24.5	22.5	21.0	22.0
2	15.5	14.0	14.5	23.5	22.0	22.5	25.5	24.0	24.5	22.5	21.0	22.0
3	16.5	14.5	15.5	24.0	22.5	23.0	24.5	23.5	24.0	23.5	21.0	22.5
4	18.5	16.0	17.0	23.0	22.0	22.5	24.0	22.5	23.0	23.5	22.0	22.5
5	19.5	17.5	18.5	23.0	21.5	22.0	23.5	22.0	22.5	22.0	21.0	21.5
6	20.0	18.0	19.0	23.5	21.5	22.0	25.0	22.5	24.0	21.5	20.0	21.0
7	19.0	17.5	18.0	24.0	22.0	23.0	24.5	23.5	24.0	21.0	19.5	20.5
8	18.5	16.5	17.5	25.5	23.5	24.0	24.0	22.5	23.5	22.0	20.0	21.0
9	18.5	17.0	18.0	23.5	22.5	23.0	24.0	22.0	23.0	22.5	21.0	22.0
10	18.0	16.5	17.5	25.0	22.5	23.5	23.0	21.0	22.0	22.0	19.5	21.0
11	19.0	17.0	18.0	24.5	23.0	24.0	23.5	21.0	22.5	19.5	18.5	19.0
12	21.0	18.0	19.5	23.0	22.5	22.5	23.5	22.0	22.5	19.0	16.5	17.5
13	22.5	20.0	21.0	22.5	21.5	22.0	22.0	20.5	21.0	16.5	16.0	16.5
14	21.5	20.0	20.5	22.5	21.0	22.0	20.5	18.5	19.0	16.5	15.0	16.0
15	20.5	19.5	20.0	21.5	20.5	21.0	20.0	17.5	18.5	17.5	15.5	16.5
16	21.0	19.5	20.5	23.0	20.5	21.5	20.5	19.0	20.0	18.0	16.5	17.5
17	20.0	18.5	19.0	24.0	21.5	23.0	22.0	20.0	21.0	19.0	17.5	18.0
18	19.0	18.0	18.5	25.5	22.5	24.0	23.5	21.5	22.5	19.0	17.5	18.5
19	18.5	17.5	18.0	26.5	23.5	25.0	23.5	22.0	23.0	19.0	17.5	18.5
20	19.0	17.0	18.0	27.0	24.5	26.0	23.0	22.0	22.5	18.5	17.5	18.0
21	19.5	17.5	18.5	27.0	25.5	26.5	23.5	21.5	22.5	18.5	17.0	17.5
22	19.0	18.5	18.5	27.0	25.5	26.0	23.5	22.0	22.5	18.5	17.5	18.0
23	19.0	17.5	18.5	27.0	25.0	26.0	22.5	21.0	22.0	18.5	17.0	17.5
24	20.0	18.0	19.0	26.5	24.5	25.0	22.0	20.5	21.5	19.0	17.0	18.0
25	19.5	19.0	19.5	25.0	23.5	24.5	21.5	20.5	21.0	19.0	17.0	18.0
26	20.5	18.5	19.5	24.5	23.0	24.0	21.5	20.0	21.0	19.5	18.0	18.5
27	21.0	19.5	20.0	25.0	23.0	24.0	21.0	20.0	20.5	19.0	18.0	18.5
28	21.5	20.0	21.0	25.5	23.0	24.0	22.0	20.0	21.0	18.5	17.0	18.0
29	22.5	20.5	21.5	25.0	24.0	24.5	22.5	20.5	21.5	18.0	17.0	17.5
30	22.5	21.5	22.0	24.5	23.0	23.5	22.5	21.0	22.0	17.0	16.0	16.5
31	---	---	---	24.5	22.5	23.5	23.0	21.5	22.5	---	---	---
MONTH	22.5	13.5	18.5	27.0	20.5	23.5	25.5	17.5	22.0	23.5	15.0	19.0
YEAR	27.0	.0	10.5									

06329500 YELLOWSTONE RIVER NEAR SIDNEY, MT--Continued

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	211	6840	54	1340	---	1020	25	378	27	423	63	1430
2	192	6070	57	1480	---	1020	25	364	26	407	53	1190
3	178	5530	57	1480	---	1020	24	337	26	421	43	987
4	158	4780	63	1660	---	950	22	309	25	418	37	879
5	131	3890	70	1910	---	929	21	283	24	421	33	802
6	118	3470	73	1990	---	907	22	309	22	380	31	787
7	116	3410	75	2070	---	864	25	364	21	357	31	829
8	115	3320	72	1960	---	842	30	454	22	368	31	921
9	112	3210	71	1960	---	842	35	548	22	380	108	3500
10	108	3060	73	2090	---	864	26	421	21	369	343	12000
11	97	2720	83	2400	---	886	24	389	20	356	439	19600
12	94	2590	100	2920	40	886	25	405	18	321	672	30800
13	94	2560	118	3380	21	476	25	391	16	294	883	45300
14	95	2590	77	1460	36	836	25	391	14	257	1220	77400
15	102	2780	60	778	52	1260	24	376	15	275	1810	139000
16	114	3110	---	713	53	1290	24	389	18	330	1240	114000
17	113	3080	---	697	53	1220	23	385	23	422	890	84100
18	93	2510	---	680	51	1100	22	380	30	567	1160	122000
19	84	2240	---	664	46	969	22	392	41	797	1080	137000
20	94	2520	---	540	37	799	21	397	56	1130	990	115000
21	96	2570	---	526	33	731	25	479	69	1450	982	103000
22	95	2540	---	675	34	771	33	624	79	1710	1060	103000
23	95	2530	---	945	37	859	42	771	88	1900	1040	92700
24	93	2450	---	1080	40	950	53	944	94	2030	1130	110000
25	87	2290	---	1270	43	1020	56	998	94	2080	1110	83900
26	82	2180	---	1350	45	1070	51	881	89	2040	2600	211000
27	76	2000	---	1320	46	1070	46	770	82	1930	2180	182000
28	72	1880	---	1300	44	998	43	697	73	1710	1400	86900
29	73	1910	---	1300	38	800	39	621	---	---	1050	59500
30	72	1850	---	1300	32	588	34	532	---	---	2020	109000
31	49	1020	---	---	28	469	30	470	---	---	1090	53000
TOTAL	---	93500	---	43238	---	28306	---	15449	---	23543	---	2101525
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	685	31100	250	8840	1540	122000	281	21000	287	8600	120	2410
2	602	25400	195	6840	918	72100	258	18700	172	4970	105	2020
3	531	20900	187	6510	692	46100	230	16500	190	5180	128	2440
4	462	17800	195	6950	620	35700	232	16300	900	22800	379	6990
5	437	15700	195	7270	586	29600	214	14000	1190	27900	231	4200
6	438	15000	184	7200	489	22600	212	12700	922	20500	162	2870
7	458	15500	161	6300	368	16600	189	10700	542	11300	153	2620
8	545	19000	141	5410	515	26100	236	12800	321	6270	150	2470
9	710	26800	142	5560	838	44300	202	10100	276	5130	147	2320
10	907	38700	182	7520	873	53300	167	7760	241	4280	138	2160
11	995	45400	223	9390	472	24700	172	7760	206	3490	109	1650
12	1020	47100	210	8730	320	16200	186	7880	162	2690	87	1290
13	980	44500	191	7480	281	14500	198	7910	119	1980	84	1250
14	890	39400	192	6950	251	12100	177	6600	93	1500	85	1270
15	836	36800	210	7090	280	14500	150	5260	90	1440	96	1460
16	820	34500	236	7260	458	28900	134	4560	90	1470	167	2610
17	828	35300	220	6770	885	57100	117	3850	93	1630	113	1780
18	872	39800	215	6440	1060	66400	108	3410	115	2360	87	1370
19	750	33200	208	6460	563	43200	102	3060	99	2080	69	1080
20	553	23400	199	6660	470	33900	98	2780	79	1580	57	877
21	488	20400	216	8460	401	29400	97	2590	64	1210	52	783
22	461	19200	289	12000	545	45600	101	2560	57	1060	50	733
23	399	16400	321	14100	719	62300	123	3120	59	1090	49	710
24	294	11500	302	13500	772	63200	148	3710	61	1150	49	706
25	247	9140	288	13400	690	53700	189	4560	65	1230	48	680
26	239	8580	538	28200	521	38300	246	6240	67	1280	48	673
27	228	8310	772	45000	410	29200	704	20500	70	1350	47	655
28	217	7970	978	61300	351	24900	442	12100	72	1420	46	652
29	222	8150	1100	74500	369	27600	305	8100	86	1780	45	645
30	277	9950	1450	109000	323	24600	300	8180	121	2480	44	649
31	---	---	1760	153000	---	---	277	7700	129	2650	---	---
TOTAL	---	724900	---	674090	---	1178700	---	272990	---	153650	---	52023

TOTAL LOAD FOR YEAR: 5362114 TONS.

06329500 YELLOWSTONE RIVER NEAR SIDNEY, MT--Continued

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPER-ATURE (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70340)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)	SED. SUSP. FALL DIAM. % FINER THAN .125 MM (70343)	SED. SUSP. FALL DIAM. % FINER THAN .250 MM (70344)	SED. SUSP. FALL DIAM. % FINER THAN .500 MM (70345)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT												
04...	1300	12.5	11300	156	4760	--	--	--	--	--	--	70
NOV												
14...	1200	3.5	7000	74	1400	--	--	--	--	--	--	78
DEC												
13...	1500	.5	8220	18	399	--	--	--	--	--	--	77
MAR												
18...	1300	.5	39000	1220	128000	52	65	75	87	99	100	--
APR												
29...	1600	10.0	13600	229	8410	--	--	--	--	--	--	73
MAY												
16...	1500	15.0	11500	242	7510	--	--	--	--	--	--	84
JUN												
13...	1300	20.0	19400	268	14000	--	--	--	--	--	--	61
JUL												
10...	1100	22.5	17300	163	7610	--	--	--	--	--	--	60
31...	1300	22.0	10600	280	8010	--	--	--	--	--	--	91
SEP												
18...	1200	17.0	5820	87	1370	--	--	--	--	--	--	91

PARTICLE-SIZE DISTRIBUTION OF SURFACE BED MATERIAL, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	BED MAT. FALL DIAM. % FINER THAN .062 MM (80158)	BED MAT. FALL DIAM. % FINER THAN .125 MM (80159)	BED MAT. FALL DIAM. % FINER THAN .250 MM (80160)	BED MAT. FALL DIAM. % FINER THAN .500 MM (80161)	BED MAT. FALL DIAM. % FINER THAN 1.00 MM (80162)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)
OCT									
04...	1300	0	12	92	100	--	--	--	--
MAY									
16...	1500	40	89	99	100	--	--	--	--
JUN									
13...	1300	60	94	100	--	--	--	--	--
JUL									
10...	1100	1	5	74	97	98	99	99	100
31...	1300	0	0	89	100	--	--	--	--
SEP									
18...	1200	2	47	98	100	--	--	--	--

DATE	TIME	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	WEATHER (WMO CODE NUMBER) (00041)
JUL , 1979									
30...	1700	650	8.5	19.0	23.0	7.8	96	713	1
30...	1800	--	--	--	23.0	7.8	96	--	2
30...	1900	658	8.6	18.5	23.0	7.8	97	712	3
30...	2000	--	--	--	23.0	7.7	95	--	--
30...	2100	--	--	--	23.0	7.5	93	--	--
30...	2200	658	8.3	18.5	23.0	7.4	91	714	0
30...	2300	--	--	--	22.5	7.3	89	--	--
30...	2400	--	--	--	22.5	7.2	88	--	--
31...	0100	--	--	--	22.5	7.1	87	--	--
31...	0200	--	--	--	22.0	7.1	86	--	--
31...	0300	--	--	--	22.0	7.1	86	--	--
31...	0400	--	--	--	22.0	7.1	86	--	--
31...	0500	620	8.5	14.0	21.5	7.1	85	714	0
31...	0600	--	--	--	21.5	7.1	85	--	--
31...	0700	638	8.5	15.0	21.5	7.1	85	715	0
31...	0800	--	--	--	21.5	7.2	86	--	--
31...	0900	--	--	--	21.5	7.2	86	--	--
31...	1000	640	8.4	22.0	22.0	7.3	88	714	0
31...	1100	--	--	--	22.0	7.3	88	--	--
31...	1200	--	--	--	22.5	7.4	90	--	--
31...	1300	685	8.5	27.0	22.5	7.5	92	713	0
31...	1400	--	--	--	23.0	7.5	93	--	--
31...	1500	--	--	--	23.0	7.5	93	--	--
31...	1600	669	8.3	--	23.5	7.6	95	--	--
31...	1700	660	8.4	30.0	24.0	7.6	96	712	0

06329500 YELLOWSTONE RIVER NEAR SIDNEY, MT--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

PERIPHYTON

DATE	TIME	LENGTH OF EXPOSURE (DAYS) (00022)	PERI-PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M (00573)	PERI-PHYTON BIOMASS ASH WEIGHT G/SQ M (00572)	CHLOR-A PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2) (70957)	CHLOR-B PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2) (70958)	BIOMASS CHLORO-PHYLL RATIO PERI-PHYTON (UNITS) (70950)
JUL							
31...	1300	21	.940	.550	.400	.000	975

PHYTOPLANKTON

DATE	NOV 14,78		MAR 16,79		MAY 16,79		JUN 13,79	
TIME	1200		1300		1500		1300	
TOTAL CELLS/ML	2000		2000		6600		1400	
DIVERSITY: DIVISION	1.2		0.3		1.2		1.0	
.CLASS	1.2		0.3		1.2		1.0	
..ORDER	1.3		1.2		1.9		1.8	
...FAMILY	2.1		2.7		2.3		2.3	
....GENUS	2.2		2.7		0.0		2.5	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)								
.CHLOROPHYCEAE								
..CHLOROCOCCALES								
...CHARACIACEAE								
....SCHROEDERIA	--	-	--	-	--	-	13	1
...MICRACTINIACEAE								
....MICRACTINIUM	--	-	--	-	260	4	--	-
...OOCYSTACEAE								
....ANKISTRODESMUS	--	-	--	-	620	9	26	2
....CHODATELLA	22	1	--	-	--	-	--	-
....KIRCHNERIELLA	--	-	--	-	100	2	--	-
....RADIOCOCCUS	--	-	--	-	210	3	--	-
...SCENEDESMACEAE								
....SCENEDESMUS	45	2	--	-	310	5	150	11
....TETRASTRUM	--	-	--	-	150	2	--	-
..VOLVOCALES								
...CHLAMYDOMONADACEAE	--	-	--	-	310	5	--	-
CHRYSOPHYTA								
.BACILLARIOPHYCEAE								
..CENTRALES								
...COSCINODISCACEAE								
....CYCLOTELLA	45	2	740#	37	3200#	49	620#	45
..PENNALES								
...ACHNANTHACEAE								
....ACHNANTHES	22	1	--	-	--	-	--	-
....COCCONEIS	45	2	110	5	--	-	--	-
...CYMBELLACEAE								
....CYMBELLA	22	1	210	11	--	-	--	-
...DIATOMACEAE								
....DIATOMA	130	7	420#	21	--	-	--	-
...FRAGILARIACEAE								
....ASTERIONELLA	--	-	--	-	--	-	140	10
....SYNEDRA	110	6	110	5	--	-	39	3
...GOMPHONEMATACEAE								
....GOMPHONEMA	--	-	110	5	--	-	--	-
...NAVICULACEAE								
....GYROSIGMA	--	-	--	-	--	-	13	1
....NAVICULA	22	1	110	5	51	1	52	4
...NITZSCHIACEAE								
....NITZSCHIA	290	15	--	-	820	13	180	13
...SURIRELLACEAE								
....SURIRELLA	22	1	110	5	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)								
.CYANOPHYCEAE								
..CHROOCOCCALES								
...CHROOCOCCACEAE								
....ANACYSTIS	--	-	--	-	510	8	130	9
..HORMOGONALES								
...OSCILLATORIACEAE								
....OSCILLATORIA	1200#	59	--	-	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)								
.EUGLENOPHYCEAE								
..EUGLENALES								
...EUGLENACEAE								
....EUGLENA	--	-	110	5	--	-	--	-
....TRACHELOMONAS	22	1	--	-	--	-	--	-

YELLOWSTONE RIVER BASIN

06329500 YELLOWSTONE RIVER NEAR SIDNEY, MT--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

PHYTOPLANKTON

DATE	JUL 10,79	JUL 31,79	SEP 18,79
TIME	1100	1300	1200
TOTAL CELLS/ML	7800	1800	9000
DIVERSITY: DIVISION	0.4	0.6	1.0
.CLASS	0.4	0.6	1.1
..ORDER	1.1	1.1	1.9
...FAMILY	1.1	1.2	2.7
....GENUS	1.5	1.9	3.6

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...CHARACIACEAE						
....SCHROEDERIA	--	-	--	-	61	1
...OOCYSTACEAE						
....ANKISTRODESMUS	71	1	150	9	1600#	18
....DICTYOSPHAERIUM	--	-	--	-	970	11
...SCENEDESMACEAE						
....SCENEDESMUS	--	-	100	6	850	9
....TETRASTRUM	--	-	--	-	240	3
..TETRASPORALES						
...COCCOMYXACEAE						
....ELAKATOTHRIX	--	-	--	-	120	1
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CHLAMYDOMONAS	140	2	--	-	1300	14
...VOLVOCACEAE						
....PANDORINA	--	-	--	-	970	11
CHRYSOPHYTA						
.BACILLARIOPHYCEAE						
..CENTRALES						
...COSCINODISCACEAE						
....CYCLOTELLA	5200#	66	460#	26	120	1
....MELOSIRA	570	7	830#	47	--	-
..PENNALES						
...NAVICULACEAE						
....NAVICULA	--	-	--	-	180	2
...NITZSCHIACEAE						
....NITZSCHIA	1600#	20	210	12	2200#	25
.CHRYSOPHYCEAE						
..CHRYSOMONADALES						
...CHROMULINACEAE						
....CHRYSOCOCCUS	--	-	--	-	120	1
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..CHROOCOCCALES						
...CHROOCOCCACEAE						
....ANACYSTIS	--	-	--	-	240	3
PYRRHOPHYTA (FIRE ALGAE)						
.DINOPHYCEAE						
..PERIDINIALES						
...GLENODINIACEAE						
....GLENODINIUM	280	4	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

MISSOURI RIVER BASIN

Smaller reservoirs in Missouri River basin in Montana

06012000 LIMA RESERVOIR.--Lat 44°39'16", long 112°21'54", in SW¼ sec.32, T.13 S., R.6 W., Beaverhead County, Hydrologic Unit 10020001, at Lima Dam on Red Rock River, 7 mi (11 km) northwest of Monida. DRAINAGE AREA, 570 mi^2 (1,476 km^2). PERIOD OF RECORD, April 1940 to current year. Records prior to October 1950, published only in WSP 1309, and those for April 1955, published only in WSP 1729. Records of daily elevations available in files of Helena district office. Nonrecording gage read twice daily. Datum of gage is at National Geodetic Vertical Datum of 1929 (levels by Montana Department of Natural Resources and Conservation).

Reservoir is formed by earthfill dam with concrete spillway completed in 1902. Usable capacity, 84,050 acre-ft (104 hm^3) between elevation 6,537.30 ft (1,992.569 m), bottom of tunnel, and 6,582.7 ft (2,006.41 m), spillway crest. No dead storage. Figures given herein represent usable contents. Water is used for irrigation, flood control, and recreation. Records furnished by Water Users Irrigation Co.

EXTREMES FOR PERIOD OF RECORD: Maximum contents observed, 85,220 acre-ft (105 hm^3) May 13, 1952, elevation, 6,582.88 ft (2,006.462 m); no usable storage Sept. 20-26, 1979.

EXTREMES FOR CURRENT YEAR: Maximum contents observed, 69,540 acre-ft (85.7 hm^3) May 25, elevation, 6,580.28 ft (2,005.669 m); no usable storage Sept. 20-26.

06020500 RUBY RIVER RESERVOIR.--Lat 45°14'21", long 112°06'35", in NE¼NE¼SE¼ sec.8, T.7 S., R.4 W., Madison County, Hydrologic Unit 10020003, at dam on Ruby River, 6 mi (10 km) south of Alder. DRAINAGE AREA, 596 mi (1,544 km^2). PERIOD OF RECORD, July 1938 to April 1950, September 1954, May 1955, September to November 1955, and February to September 1960 (total contents), October 1960 to current year (usable contents). Records prior to October 1939, published only in WSP 1309, and those for September 1954, published only in WSP 1729. Elevations are determined by measuring from reference points in the middle and at or near the end of the month. Datum of gage is at National Geodetic Vertical Datum of 1929 (levels by Montana Department of Natural Resources and Conservation).

Reservoir is formed by earthfill dam with concrete spillway, completed in 1938. Usable capacity, 38,850 acre-ft (47.9 hm^3) between elevation 5,300.0 ft (1,615.44 m), bottom of tunnel, and 5,392.0 ft (1,643.48 m), spillway crest. Dead storage, 100 acre-ft (123,000 m^3) below elevation 5,300.0 ft (1,615.44 m). Figures given herein represent usable contents. Water is used for irrigation and recreation. Records furnished by Montana Department of Natural Resources and Conservation. REVISED RECORDS, WSP 1729: Drainage area.

EXTREMES FOR PERIOD OF RECORD: Maximum contents observed, 46,040 acre-ft (56.8 hm^3) Aug. 25, 1975, elevation, 5,399.0 ft (1,645.62 m); no storage at times in 1938, 1955, 1961.

EXTREMES FOR CURRENT YEAR: Maximum contents observed, 39,840 acre-ft (49.1 hm^3) June 4, elevation, 5,393.0 ft (1,643.79 m); minimum observed, 1,000 acre-ft (1.23 hm^3) Sept. 30 (estimated).

06036000 WILLOW CREEK RESERVOIR.--Lat 45°42'51", long 111°41'57", in NW¼NW¼NW¼ sec.35, T.1 S., R.1 W., Madison County, Hydrologic Unit 10020005, at dam on Willow Creek, 4 mi (6 km) east of Harrison. DRAINAGE AREA, 153 mi^2 (396 km^2). PERIOD OF RECORD, February 1938 to March 1958 (total contents), April 1958 to current year (usable contents). Records prior to October 1939, published only in WSP 1309 and November, December 1951, published only in WSP 1729. Prior to October 1949, published as Harrison Lake near Harrison. Elevations determined by measuring from reference marks in the middle and at or near the end of the month. Datum of gage is at National Geodetic Vertical Datum of 1929 (levels by Montana Department of Natural Resources and Conservation).

Reservoir is formed by earth and rockfill dam with concrete spillway completed in 1938. Usable capacity 17,730 acre-ft (21.9 hm^3) between elevation 4,666.5 ft (1,422.35 m), tunnel inlet, and 4,736.0 ft (1,443.53 m), spillway crest. Dead storage, 270 acre-ft (333,000 m^3) below elevation 4,666.5 ft (1,422.35 m). Figures given herein represent usable contents. Water is used for irrigation and recreation. Records furnished by Montana Department of Natural Resources and Conservation. REVISED RECORDS, WSP 1629: 1958. WSP 1729: 1948(M), 1951-52, 1956-57.

EXTREMES FOR PERIOD OF RECORD: Maximum contents observed, 19,230 acre-ft (23.7 hm^3) June 30, 1963, elevation, 4,736.7 ft (1,443.75 m); minimum observed, 2,270 acre-ft (2.80 hm^3) Nov. 15, 1970, elevation, 4,705.0 ft (1,434.08 m).

EXTREMES FOR CURRENT YEAR: Maximum contents observed, 17,730 acre-ft (21.9 hm^3) Mar. 15, Apr. 1, 15, May 1, 15, June 1, elevation, 4,736.0 ft (1,443.53 m); minimum observed, 6,500 acre-ft (8.01 hm^3) Nov. 1, 15, elevation, 4,718 ft (1,438.0 m).

06038000 HEBGEN LAKE.--Lat 44°51'51", long 111°20'09", in SW¼NW¼ sec.23, T.11 S., R.3 E., Gallatin County, Hydrologic Unit 10020007, at Hebgen Dam on Madison River, 18 mi (29 km) northwest of West Yellowstone, and at mile 103 (166 km). DRAINAGE AREA, 904 mi^2 (2,341 km^2). PERIOD OF RECORD, January 1936 to current year. Records prior to October 1939, published only in WSP 1309. Figures of contents published in WSP 1629, 1709, and 1729 have been found to be in error and should not be used. Prior to Oct. 1, 1949, published as Hebgen Reservoir near West Yellowstone. Records of daily elevations since October 1955 on file in Helena district office. Nonrecording gage read about twice daily. Datum of gage is at National Geodetic Vertical Datum of 1929 (levels by The Montana Power Co.). Prior to earthquake of Aug. 17, 1959, datum of gage was 9.74 ft (2.968 m) higher, also at National Geodetic Vertical Datum of 1929.

Reservoir is formed by earthfill dam with concrete core and spillway completed in 1915, repaired in 1960 following severe earthquake of Aug. 7, 1959, which lowered dam 9.74 ft (2.968 m) and deformed reservoir area. Subsequent usable capacity, 377,500 acre-ft (465 hm^3) between elevation 6,473.00 ft (1,972.970 m), bottom of outlet tower, and 6,534.87 ft (1,991.828 m), spillway crest. Dead storage, 7,340 acre-ft (9.05 hm^3) below elevation 6,473.00 ft (1,972.970 m). Prior to Aug. 17, 1959, usable capacity, 344,700 acre-ft (425 hm^3) between 6,483.11 ft (1,976.052 m), bottom of outlet tower, and 6,544.61 ft (1,994.797 m), spillway crest. No dead storage. Observations of reservoir level prior and subsequent to earthquake indicate smaller increases in capacity than indicated by new capacity table. Figures given herein represent usable contents. Water is used for power and recreation. Records furnished by The Montana Power Co. REVISED RECORDS, WSP 1916: 1959-60.

EXTREMES FOR PERIOD OF RECORD: Maximum contents observed, 377,500 acre-ft (465 hm^3) on many days in 1962-64, 1970, 1972, 1974-76, 1978, elevation, 6,534.87 ft (1,991.828 m); minimum monthend, 670 acre-ft (826,000 m^3) Dec. 31. 1936 (by capacity table used prior to August 1959).

EXTREMES FOR CURRENT YEAR: Maximum contents observed, 342,700 acre-ft (423 hm^3) July 26, elevation, 6,532.04 ft (1,990.966 m); minimum observed, 183,200 acre-ft (226 hm^3) May 1, elevation, 6,516.92 ft (1,986.357 m).

Smaller reservoirs in Missouri River basin in Montana--Continued

06040500 ENNIS LAKE.--Lat 45°28'12", long 111°38'15", in NW¼SW¼ sec.20, T.4 S., R.1 E., Madison County, Hydrologic Unit 10020007, at Madison Dam on Madison River, 5 mi (8 km) northeast of McAllister. DRAINAGE AREA, 2,181 mi^2 (5,649 km^2). PERIOD OF RECORD, January 1936 to September 1975 (total contents), October 1975 to current year (usable contents). Records prior to October 1939, published only in WSP 1309. Prior to 1949, published as Madison Reservoir near McAllister. Records of daily elevations since October 1955 on file in Helena district office. Nonrecording gage read about twice daily. Datum of gage is at National Geodetic Vertical Datum of 1929 (levels by The Montana Power Co.).

Reservoir is formed by timber crib dam completed in 1900. Usable capacity, 41,020 acre-ft (50.6 hm^3) between elevation 4,826.5 ft (1,471.12 m), bottom of penstock, and 4,841.5 ft (1,475.69 m), top of flashboards. Dead storage, 1,040 acre-ft (1.28 hm^3) below elevation 4,826.5 ft (1,471.12 m). Not normally drawn below 4,831.0 ft (1,472.49 m), 6,810 acre-ft (8.40 hm^3). Figures given herein represent usable contents. Water is used for power and recreation. Records furnished by The Montana Power Co.

EXTREMES FOR PERIOD OF RECORD: Maximum contents observed, 40,830 acre-ft (50.3 hm^3) June 20, 1968, elevation, 4,841.45 ft (1,475.674 m); minimum observed, 2,600 acre-ft (3.21 hm^3) Mar. 31, 1937, elevation, 4,828.8 ft (1,471.82 m).

EXTREMES FOR CURRENT YEAR: Maximum contents observed, 38,840 acre-ft (47.9 hm^3) June 28, elevation, 4,841.20 ft (1,475.598 m); minimum observed, 33,650 acre-ft (41.5 hm^3) Dec. 30,31, Jan.1, elevation, 4,839.82 ft (1,475.177 m).

06049500 MIDDLE CREEK RESERVOIR.--Lat 45°29'18", long 110°58'42", in NW¼SW¼ sec.15, T.4 S., R.6 E., Gallatin County, Hydrologic Unit 10020008, at dam on Hyalite Creek, 14 mi (23 km) south of Bozeman. DRAINAGE AREA, 27.4 mi^2 (71.0 km^2). PERIOD OF RECORD, April 1951 to current year. Nonrecording gage read in the middle and at or near the end of month. Altitude of lake at full pond is about 6,700 ft (2,040.2 m), from topographic map.

Reservoir is formed by earthfill dam with conduit control works completed in 1951. Storage began in March 1951. Usable capacity, 8,030 acre-ft (9.90 hm^3) between gage height 125 ft (38.1 m), bottom of outlet, and 200.75 ft (61.189 m), spillway crest. Dead storage, 209 acre-ft (258,000 m^3) below gage height 125 ft (38.1 m). Figures given herein represent usable contents. Water is used for irrigation and municipal purposes. Records furnished by Montana Department of Natural Resources and Conservation.

EXTREMES FOR PERIOD OF RECORD: Maximum contents observed, 8,240 acre-ft (10.2 hm^3) May 31, 1966, gage height, 201.7 ft (61.48 m); minimum observed, 120 acre-ft (148,000 m^3) Oct. 18, 1965, gage height, 129.0 ft (39.32 m).

EXTREMES FOR CURRENT YEAR: Maximum contents observed, 8,040 acre-ft (9.91 hm^3) June 29, gage height, 200.8 ft (61.20 m); minimum observed, 3,170 acre-ft (3.91 hm^3) Sept. 30, gage height, 170 ft (51.8 m).

06064500 LAKE HELENA.--Lat 46°45'58", long 111°53'10", in SE¼SW¼ sec.29, T.12 N., R.2 W., Lewis and Clark County, Hydrologic Unit 10030101, at Hauser Dam on Missouri River, 13 mi (21 km) northeast of Helena. DRAINAGE AREA, 610 mi^2 (1,580 km^2) above dam and control works on Prickly Pear Creek. PERIOD OF RECORD, May 1945 to current year. April to July 1953 scattered daily elevations and contents, published in WSP 1320-B. May to June 1964 daily elevations and contents, published in WSP 1840-B. Records of daily elevations since October 1955 on file in Helena district office. Nonrecording gage at Hauser Dam read hourly. Datum of gage is at National Geodetic Vertical Datum of 1929 (levels by The Montana Power Co..).

Gage heights collected at Hauser Dam are effective on Lake Helena at control dam. Prior to April 1945, contents of Lake Helena included with records of Hauser Lake. Since that date, a dam and control works has separated the two lakes to allow independent regulation of Lake Helena, if needed. Usable capacity, 10,450 acre-ft (12.9 hm^3) between elevation 3,624.00 ft (1,104.595 m), bottom of control works, and 3,635.00 ft (1,107.948 m), top of flashboards. No dead storage. Figures given herein represent usable contents. Water is used for recreation, wildlife, and power production through Hauser Dam. Records furnished by The Montana Power Co.

EXTREMES FOR PERIOD OF RECORD: Maximum contents observed, 11,790 acre-ft (14.5 hm^3) Aug. 2, 1960, Dec. 10, 1962, July 19, 20, Sept. 4, 1963, Aug. 15, 1968, Apr. 6, 1973, elevation, 3,635.60 ft (1,108.131 m); no storage Mar. 29 to Apr. 7, 1958, Feb. 12, 20, 1962, May 4-10, 1979.

EXTREMES FOR CURRENT YEAR: Maximum contents observed, 11,340 acre-ft (14.0 hm^3) Mar. 8,9,12, June 19,29, Aug. 16,17, elevation, 3,635.40 ft (1,108.070 m); no storage May 4-10.

06065000 HAUSER LAKE.--Lat 46°45'58", long 111°53'10", in SE¼SW¼ sec.29, T.12 N., R.2 W., Lewis and Clark County, Hydrologic Unit 10030101, at Hauser Dam on Missouri River, 1.6 mi (2.6 km) downstream from Prickly Pear Creek, 13 mi (21 km) northeast of Helena, and at mile 2,226.4 (3,582.3 km). DRAINAGE AREA, 16,876 mi^2 (43,709 km^2). PERIOD OF RECORD, January 1936 to current year. Records prior to October 1939, published only in WSP 1309. April to July 1953 scattered daily elevations and contents, published in WSP 1320-B. May to June 1964 daily elevations and contents, published in WSP 1840-B. Monthend contents prior to May 1945 include contents of Lake Helena, excluded thereafter. Records of daily elevations since October 1955 on file in Helena district office. Nonrecording gage read hourly. Datum of gage is at National Geodetic Vertical Datum of 1929 (levels by The Montana Power Co.).

Reservoir is formed by concrete dam completed in 1907; separated from Lake Helena in April 1945. Usable contents 51,420 acre-ft (63.4 hm^3) between elevation 3,617.00 ft (1,102.462 m), bottom of tunnel, and 3,635.00 ft (1,107.948 m) top of flashboards. Dead storage, 46,810 acre-ft (57.7 hm^3) below elevation 3,617.00 ft (1,102.462 m). Prior to Nov. 28, 1949, usable capacity, 52,090 acre-ft (64.2 hm^3) at elevation 3,635.00 ft (1,107.948 m), decrease caused by constructions of Canyon Ferry Dam in backwater of Hauser Dam. Not normally drawn below 3,621.00 ft (1,103.681 m), 8,870 acre-ft (10.9 hm^3). Figures given herein represent usable contents. Water is used for power and recreation. Records furnished by The Montana Power Co. REVISED RECORDS, WSP 1729: 1949-57.

EXTREMES FOR PERIOD OF RECORD: Maximum contents observed since May 1945, 53,630 acre-ft (66.1 hm^3) Aug. 2, 1960, Dec. 10, 1961, July 19, 20, Sept. 4, 1963, Aug. 15, 1968, Apr. 6, 1973, elevation, 3,635.60 ft (1,108.131 m); no storage Jan. 31, Feb. 29, 1936.

EXTREMES FOR CURRENT YEAR: Maximum contents observed, 52,890 acre-ft (65.2 hm^3) Mar. 8,9, June 19,29, Aug. 16,17, elevation, 3,635.40 ft (1,108.070 m); minimum observed, 5,160 acre-ft (6.36 hm^3) May 8, elevation, 3,619.40 ft (1,103.193 m).

Smaller reservoirs in the Missouri River basin in Montana--Continued

06066000 HOLTER LAKE.--Lat 46°59'28", long 112°00'17", on line between SE¼ sec.5 and NE¼ sec.8, T.14 N., R.3 W., Lewis and Clark County, Hydrologic Unit 10030101, at Holter Dam on Missouri River, 3.3 mi (5.3 km) east of Wolf Creek, and at mile 2,204 (3,546 km). DRAINAGE AREA, 17,149 mi^2 (44,416 km^2). PERIOD OF RECORD, January 1936 to current year. Records prior to October 1939, published only in WSP 1309. April to July 1953 scattered daily elevations and contents, published in WSP 1320-B. May to June 1964 daily elevations and contents, published in WSP 1840-B. Records of daily elevations since October 1955 on file in Helena district office. Prior to 1950, published as Holter Reservoir near Wolf Creek. Nonrecording gage read three times daily. Datum of gage is at National Geodetic Vertical Datum of 1929 (levels by The Montana Power Co.).

Reservoir is formed by concrete dam completed in 1918. Usable capacity, 81,920 acre-ft (101 hm^3) between elevation 3,543.00 ft (1,079.906 m), bottom of tunnel, and 3,564.00 ft (1,086.307 m), top of flashboards. Dead storage, 158,500 acre-ft (195 hm^3) below elevation 3,543.00 ft (1,079.906 m). Not normally drawn below 3,548.00 ft (1,081.430 m), 16,660 acre-ft (20.5 hm^3). Figures given herein represent usable contents. Water is used for power and recreation. Records furnished by The Montana Power Co.

EXTREMES FOR PERIOD OF RECORD: Maximum contents observed, 85,250 acre-ft (105 hm^3) June 19, 1970, elevation, 3,564.70 ft (1,086.521 m); no storage Feb. 29, Dec. 31, 1936.

EXTREMES FOR CURRENT YEAR: Maximum contents observed, 81,820 acre-ft (101 hm^3) Oct. 7, Nov. 30, Sept. 21, 27, elevation, 3,563.98 ft (1,086.301 m); minimum observed, 70,180 acre-ft (86.5 hm^3) June 12, elevation, 3,561.47 ft (1,085.536 m).

06075000 SMITH RIVER RESERVOIR.--Lat 46°37'27", long 110°44'48", near center of south line of sec.17, T.10 N., R.8 W., Meagher County, Hydrologic Unit 10030103, at dam on Smith River, 9 mi (15 km) northeast of White Sulphur Springs. DRAINAGE AREA, 72.3 mi^2 (187.3 km^2). PERIOD OF RECORD, April 1938 to September 1950 (scattered records 1947-50) and April to October 1959 (total contents), November 1959 to current year (usable contents). Records for some periods published only in WSP 1309 and for April 1959, published only in WSP 1729. Elevations determined by measuring from reference marks at or near middle and end of month. Datum of gage is at National Geodetic Vertical Datum of 1929 (levels by Montana Department of Natural Resources and Conservation).

Reservoir is formed by earthfill dam with concrete spillway completed in 1936. Usable capacity, 10,650 acre-ft (13.1 hm^3) between elevation, 5,415.0 ft (1,650.49 m), bottom of outlet, and 5,486.0 ft (1,672.13 m), spillway crest. Dead storage, 52 acre-ft (64,100 m^3) below elevation 5,415.0 ft (1,650.49 m). Figures given herein represent usable contents. Water is used for irrigation and recreation. Records furnished by Montana Department of Natural Resources and Conservation. REVISED RECORDS, WSP 1729: 1960.

EXTREMES FOR PERIOD OF RECORD: Maximum contents observed, 11,650 acre-ft (14.4 hm^3) June 1, 1978, elevation, 5,489.1 ft (1,673.08 m); minimum observed, 90 acre-ft (111,000 m^3) Sept. 12, 1973, elevation, 5,423.9 ft (1,653.20 m).

EXTREMES FOR CURRENT YEAR: Maximum contents observed, 11,560 acre-ft (14.3 hm^3) June 1, July 1, elevation, 5,488.8 ft (1,672.99 m); minimum observed, 5,940 acre-ft (7.32 hm^3) Sept. 30 (estimated).

06079500 GIBSON RESERVOIR.--Lat 47°36'09", long 112°45'39", in NE¼NW¼SE¼ sec.4, T.21 N., R.9 W., Teton County, Hydrologic Unit 10030104, at Gibson Dam on Sun River, 19 mi (31 km) northwest of Augusta, and at mile 99.9 (160.7 km). DRAINAGE AREA, 575 mi^2 (1,489 km^2). PERIOD OF RECORD, January 1930 to current year. Records prior to October 1940, published only in WSP 1309. April to July 1953 scattered daily elevations and contents, published in WSP 1320-B. May to June 1964 daily elevations and contents, published in WSP 1840-B. Nonrecording gage read daily. Datum of gage is at National Geodetic Vertical Datum of 1929 (levels by Water and Power Resources Service).

Reservoir is formed by concrete dam with glory-hole spillway completed in 1929. Usable capacity, 99,060 acre-ft (122 hm^3) between elevation 4,557.5 ft (1,389.13 m), bottom of outlet, and 4,724.0 ft (1,439.88 m), top of glory-hole, by capacity table effective Aug. 1, 1975; see previous reports for superseded figures. Dead storage, 16 acre-ft (19,700 m^3) below elevation 4,557.5 ft (1,389.13 m). Figures given herein represent usable contents. Water is used for irrigation and recreation. Records furnished by Water and Power Resources Service.

EXTREMES FOR PERIOD OF RECORD: Maximum contents, 116,400 acre-ft (144 hm^3) June 8, 1964, elevation, 4,732.23 ft (1,442.384 m), from floodmark, of which 11,600 acre-ft (14.3 hm^3) was uncontrolled storage, by capacity table used Oct. 1, 1965, to July 30, 1975; minimum observed, 11 acre-ft (13,600 m^3) Oct. 13, 1936, elevation, 4,560.9 ft (1,390.16 m), by capacity table used prior to 1939.

EXTREMES FOR CURRENT YEAR: Maximum contents observed, 99,040 acre-ft (122 hm^3) June 27, elevation 4,724.0 ft (1,439.88 m); minimum observed, 5,780 acre-ft (7.13 hm^3) Sept. 13, elevation, 4,609.4 ft (1,404.95 m).

06080500 PISHKUN RESERVOIR.--Lat 47°40'36", long 112°29'48", in W½ sec.10, T.22 N., R.7 W., Teton County, Hydrologic Unit 10030104, at dam 14 mi (23 km) northwest of Augusta. PERIOD OF RECORD, January 1936 to current year. Records prior to October 1940, published only in WSP 1309. April to July 1953 scattered daily elevations and contents, published in WSP 1320-B. Nonrecording gage read one or more times a month. Datum of gage is at National Geodetic Vertical Datum of 1929 (levels by Water and Power Resources Service).

This is an offstream reservoir formed by two earthfill dams completed in 1919. Stored water is diverted from Sun River in sec.36, T.22 N., R.9 W., 18 mi (29 km) northwest of Augusta. Usable capacity, 32,050 acre-ft (39.5 hm^3) between elevation 4,342.0 ft (1,323.44 m), bottom of outlet, and 4,371.0 ft (1,332.28 m), maximum pool. Dead storage, 16,400 acre-ft (20.2 hm^3) below elevation 4,342.0 ft (1,323.44 m). Prior to 1940, usable capacity varied from 3,600 to 21,750 acre-ft (4.44 to 26.8 hm^3). Figures given herein represent usable contents. Water is used for irrigation, recreation, and wildlife. Records furnished by Water and Power Resources Service.

EXTREMES FOR PERIOD OF RECORD: Maximum contents observed, 32,700 acre-ft (40.3 hm^3) July 4-6, 1953, elevation, 4,371.4 ft (1,332.40 m); no storage October 1939 to March 1940, Oct. 31, 1967.

EXTREMES FOR CURRENT YEAR: Maximum contents observed, 31,730 acre-ft (39.1 hm^3) May 10, elevation, 4,370.8 ft (1,332.22 m); minimum observed, 19,170 acre-ft (23.6 hm^3) July 31, elevation, 4,362.0 ft (1,329.54 m).

Smaller reservoirs in Missouri River basin in Montana--Continued

06082000 WILLOW CREEK RESERVOIR.--Lat 47°32'48", long 112°25'45", in SW¼NW¼ sec.30, T.21 N., R.6 W., Lewis and Clark County, Hydrologic Unit 10030104, at dam on Willow Creek, 4 mi (6 km) northwest of Augusta. PERIOD OF RECORD, January 1936 to September 1960 (total contents), October 1960 to current year (usable contents). Records prior to October 1940, published only in WSP 1309. April to July 1953 scattered daily elevations and contents, published in WSP 1320-B. Nonrecording gage read one or more times a month. Datum of gage is at National Geodetic Vertical Datum of 1929 (levels by Water and Power Resources Service).

Reservoir is formed by earthfill dam completed in 1911. Usable capacity, 32,230 acre-ft (39.7 hm^3) between elevation 4,085.28 ft (1,245.193 m), bottom of outlet, and 4,142.0 ft (1,262.48 m), maximum pool. Dead storage, 67 acre-ft (82,600 m^3) below elevation 4,085.28 ft (1,245.193 m). Prior to 1941, total capacity was 16,700 acre-ft (20.6 hm^3). Supplemental water diverted from Sun River in sec.36, T.22 N., R.9 W., 18 mi (29 km) northwest of Augusta. Figures given herein represent usable contents. Water is used for irrigation, recreation, and wildlife. Records furnished by Water and Power Resources Service.

EXTREMES FOR PERIOD OF RECORD: Maximum contents observed, 35,230 acre-ft (43.4 hm^3) June 22, 1975, elevation, 4,144.0 ft (1,263.09 m); no storage July 31, Aug. 31, 1940.

EXTREMES FOR CURRENT YEAR: Maximum contents observed, 30,930 acre-ft (38.1 hm^3) May 26, elevation, 4,141.1 ft (1,262.21 m); minimum observed, 18,990 acre-ft (23.4 hm^3) Aug. 24, elevation, 4,132.0 ft (1,259.43 m).

06083000 NILAN RESERVOIR.--Lat 47°29'06", long 112°32'24", in S½NE¼ sec.18, T.20 N., R.7 W., Lewis and Clark County, Hydrologic Unit 10030104, at north dam, lat 47°28'18", long 112°30'54", in SE¼NE¼ sec.20, T.20 N., R.7 W., at east dam, 6 mi (10 km) west of Augusta. PERIOD OF RECORD, December 1951 to current year. April to July 1953 scattered daily contents, published in WSP 1320-B. Records for November 1958 to March 1959, published only in WSP 1729. Nonrecording gage read at middle and end of month. Datum of gage is at National Geodetic Vertical Datum of 1929 (levels by Montana Department of Natural Resources and Conservation).

This is an offstream reservoir formed by two earthfill dams completed in 1951. Usable capacity, 10,090 acre-ft (12.4 hm^3) between elevation 4,402.0 ft (1,341.73 m), bottom of outlet, and 4,442.5 ft (1,354.07 m), spillway crest. Dead storage, 900 acre-ft (1.11 hm^3) below elevation 4,402.0 ft (1,341.73 m), not including contents of old lake. Stored water is diverted from Smith Creek in NE¼ sec.4, T.19 N., R.8 W., and from Ford Creek in SW¼ sec.26, T.20 N., R.8 W., at points 12 mi (19 km) and 10 mi (16 km), respectively, southwest of Augusta. Figures given herein represent total contents. Water is used for irrigation and recreation. Records furnished by Montana Department of Natural Resources and Conservation.

EXTREMES FOR PERIOD OF RECORD: Maximum contents observed, 13,520 acre-ft (16.7 hm^3) May 31, 1963, elevation, 4,448.5 ft (1,355.90 m); minimum observed since first filling, 104 acre-ft (128,000 m^3) Sept. 30, Oct. 1, 1973, computed on basis of canal inflow-outflow study.

EXTREMES FOR CURRENT YEAR: Maximum contents observed, 9,740 acre-ft (12.0 hm^3) May 1, elevation, 4,441.9 ft (1,353.89 m); minimum observed, 525 acre-ft (647,000 m^3) Sept. 30, elevation, 4,409.0 ft. (1,343.86 m).

06090900 LOWER TWO MEDICINE LAKE.--Lat 48°29'39", long 113°15'49", in NE¼ sec.34, T.32 N., R.13 W., Glacier County, Hydrologic Unit 10030201, at dam on Two Medicine River, 4 mi (6 km) northwest of East Glacier. DRAINAGE AREA, 50.2 mi^2 (130.0 km^2). PERIOD OF RECORD, September 1938 to June 1964 (dam destroyed), December 1967 to current year. Figures of no storage prior to April 1961 may be in error and should be used with caution. Records prior to October 1940, published only in WSP 1309. April to July 1953 scattered daily elevations and contents, published in WSP 1320-B. May to June 1964 occasional elevations and contents, published in WSP 1840-B. Prior to 1942, published as Two Medicine Lake near East Glacier. Nonrecording gage read at or near end of month. Datum of gage is at National Geodetic Vertical Datum of 1929 (levels by Water and Power Resources Service) and is 8.22 ft (2.505 m) higher than datum for destroyed dam (levels by Bureau of Indian Affairs).

Reservoir is formed by earthfill dam with concrete spillway and control works; construction began in September 1965, completed in November 1967. Storage began Dec. 1, 1967. Former dam 250 ft (76.2 m) upstream completed in 1913 and destroyed by flood of June 8, 1964. Usable capacity at new dam, 11,880 acre-ft (14.6 hm^3) between elevation 4,861.0 ft (1,481.63 m), bottom of outlet, and 4,882.0 ft (1,488.03 m), spillway crest. Dead storage, about 2,000 acre-ft (2.47 hm^3) near upper end of reservoir below elevation 4,861.0 ft (1,481.63 m). Prior to June 8, 1964, at site and datum then in use, usable capacity was 16,620 acre-ft (20.5 hm^3) between elevation 4,848.00 ft (1,477.670 m) elevation of natural outlet, and 4,878.0 ft (1,486.81 m), spillway crest. Dead storage was unknown. Figures given herein represent usable contents. Water is used for irrigation and recreation. Records furnished by Bureau of Indian Affairs. REVISED RECORDS, WSP 1729: Drainage area.

EXTREMES FOR PERIOD OF RECORD: Maximum contents observed 20,930 acre-ft (25.8 hm^3) June 8, 1964, elevation, 4,883.8 ft (1,488.58 m), datum and capacity table then in use, dam overtopped; possibly no storage at times in some years.

EXTREMES FOR CURRENT YEAR: Maximum contents observed, 12,720 acre-ft (15.7 hm^3) June 4, elevation, 4,883.3 ft (1,488.43 m); minimum, 1,160 acre-ft (1.43 hm^3) Sept. 30 (interpolated).

06093000 FOUR HORNS LAKE.--Lat 48°20'33", long 112°41'48", in SW¼NW¼SE¼ sec.19, T.30 N., R.8 W., Glacier County, Hydrologic Unit 10030201, at dam 7 mi (11 km) northeast of Heart Butte. PERIOD OF RECORD, September 1938 to current year. Records prior to October 1940, published only in WSP 1309 and those for December 1958 to August 1959, published only in WSP 1729. April to July 1953 scattered daily elevations and contents, published in WSP 1320-B. Prior to 1950, published as Four Horns Reservoir near Heart Butte. Nonrecording gage read at or near end of month. Datum of gage is at National Geodetic Vertical Datum of 1929 (levels by Bureau of Indian Affairs).

This is an offstream reservoir formed by earthfill dam completed in 1932. Stored water is diverted from Badger Creek in NE¼ sec.24, T.30 N., R.10 W., 5 mi (8 km) north of Heart Butte. Usable capacity, 19,250 acre-ft (23.7 hm^3) between elevation 4,081.0 ft (1,243.89 m), gage sill, and 4,115.0 ft (1,254.25 m), maximum design level. No dead storage. Figures given herein represent usable contents. Water is used for irrigation and recreation. Records furnished by Bureau of Indian Affairs.

EXTREMES FOR PERIOD OF RECORD: Maximum contents observed, 16,320 acre-ft (20.1 hm^3) Aug. 5, 1958, elevation, 4,111.6 ft (1,253.22 m); minimum observed, 2,840 acre-ft (3.50 hm^3) July 31, 1949, elevation, 4,090.0 ft (1,246.63 m).

EXTREMES FOR CURRENT YEAR: Maximum contents observed, 13,570 acre-ft (16.7 hm^3) May 2, elevation, 4,108.2 ft (1,252.18 m); minimum observed, 11,660 acre-ft (14.4 hm^3) July 31, elevation, 4,105.6 ft (1,251.39 m), but may have been less during winter period.

Smaller reservoirs in Missouri River basin in Montana--Continued

06094000 SWIFT RESERVOIR.--Lat 48°09'53", long 112°52'20", in NE¼ sec.27, T.28 N., R.10 W., Pondera County, Hydrologic Unit 10030201, at Swift Dam on Birch Creek, 17 mi (27 km) west of Dupuyer. DRAINAGE AREA, 75.3 mi^2 (195.0 km^2). PERIOD OF RECORD, January 1936 to June 1964 (dam destroyed), June 1967 to current year. Records prior to October 1940, published only in WSP 1309. April to July 1953 scattered daily elevations and contents, published in WSP 1320-B. April to June 1964 scattered daily elevations and contents, published in WSP 1840-B. Prior to 1950, published as Birch Creek Reservoir near Dupuyer. Nonrecording gage read monthly. Datum of gage is at National Geodetic Vertical Datum of 1929 (levels by Water and Power Resources Service) and is 63.7 ft (19.42 m) lower than datum for destroyed dam (levels by Pondera County Canal and Reservoir Co.).

Reservoir is formed by concrete arch dam; construction began in 1965; completed in 1967. Storage began June 22, 1967. Former dam, in same location, was built about 1915 and destroyed by flood of June 8, 1964. Usable capacity at new dam, 29,980 acre-ft (37.0 hm^3) between elevation 4,748.0 ft (1,477.19 m), bottom of outlet, and 4,883.5 ft (1,488.49 m), spillway crest. Dead storage, 35 acre-ft (43,200 m^3) below elevation 4,808.2 ft (1,465.54 m), bottom of outlet, and 4,947.0 ft (1,507.85 m), spillway crest. Dead storage was negligible. Figures given herein represent usable contents. Water is used for irrigation. Records furnished by Pondera County Canal and Reservoir Co. REVISED RECORDS, WSP 1729: Drainage area.

EXTREMES FOR PERIOD OF RECORD: Maximum contents observed, 34,300 acre-ft (42.3 hm^3) June 8, 1964, elevation, 4,956.3 ft (1,510.68 m), datum then in use; minimum observed, 20 acre-ft (24,700 m^3) Sept. 30, 1952, elevation, 4,810.0 ft (1,466.09 m), datum then in use.

EXTREMES FOR CURRENT YEAR: Maximum contents observed, 30,150 acre-ft (37.2 hm^3) May 26, elevation, 4,883.9 ft (1,488.61 m); minimum contents, 6,480 acre-ft (7.99 hm^3) Sept. 30, elevation, 4,816.7 ft (1,468.13 m).

06095500 LAKE FRANCES.--Lat 48°15'48", long 112°12'24", in NE¼NE¼ sec.23, T.29 N., R.5 W., Pondera County, Hydrologic Unit 10030203, at dam 3 mi (5 km) southeast of Valier. PERIOD OF RECORD, January 1936 to current year. Records prior to October 1940, published only in WSP 1309. April to July 1953 scattered daily elevations and contents, published in WSP 1320-B. Nonrecording gage read at or near end of month. Datum of gage is at National Geodetic Vertical Datum of 1929 (levels by Pondera County Canal and Reservoir Co.).

This is an offstream reservoir formed by earthfill dam completed about 1931. Stored water is diverted from Birch Creek in sec.28, T.29 N., R.8 W., and Dupuyer Creek in sec.28, T.29 N., R.6 W., at points 20 mi (32 km) and 6 mi (10 km), respectively, west of dam. Usable capacity, 111,900 acre-ft (138 hm^3) between elevation 3,787.40 ft (1,154.400 m), outlet sill, and 3,816.00 ft (1,163.117 m), maximum design level. Dead storage is estimated at 5,000 acre-ft (6.17 hm^3) below elevation 3,787.40 ft (1,154.400 m). Figures given herein represent usable contents. Water is used for irrigation. Records furnished by Pondera County Canal and Reservoir Co.

EXTREMES FOR PERIOD OF RECORD: Maximum contents observed, 111,400 acre-ft (137 hm^3) June 4, 1953, elevation, 3,815.92 ft (1,163.092 m); minimum observed, 4,560 acre-ft (5.62 hm^3) Jan. 31, 1938, elevation, 3,789.36 ft (1,154.997 m).

EXTREMES FOR CURRENT YEAR: Maximum contents observed, 105,900 acre-ft (131 hm^3) May 20, elevation, 3,814.89 ft (1,162.778 m); minimum observed, 68,510 acre-ft (84.5 hm^3) Sept. 30, elevation, 3,807.34 ft (1,160.477 m).

06110500 ACKLEY LAKE.--Lat 46°57'19", long 109°55'55", in SE¼ sec.22, T.14 N., R.14 E., Judith Basin County, Hydrologic Unit 10040103, at dam 4 mi (6 km) southwest of Hobson. PERIOD OF RECORD, June 1938 to September 1960 (total contents), October 1960 to current year (usable contents). Records prior to October 1939, published only in WSP 1309. Nonrecording gage read usually at or near middle and end of month. Altitude of gage is about 4,300 ft (1,310.6 m), from topographic map.

This is an offstream reservoir formed by earthfill dam with concrete conduits completed in 1938. Water is diverted from Judith River near center of east line of sec.14, T.14 N., R.13 E., 7.5 mi (12.1 km) west of Hobson. Usable capacity, 5,820 acre-ft (7.18 hm^3) between gage height 45.0 ft (13.72 m), bottom of outlet, and 82.67 ft (25.198 m), spillway crest. Dead storage, 325 acre-ft (401,000 m^3) below gage height 45.0 ft (13.72 m). Figures given herein represent usable contents. Water is used for irrigation. Records furnished by Montana Department of Natural Resources and Conservation.

EXTREMES FOR PERIOD OF RECORD: Maximum contents observed, 6,150 acre-ft (7.58 hm^3) Sept. 1, 1975, gage height, 84.0 ft (25.60 m); minimum observed, 893 acre-ft (1.10 hm^3) Apr. 1, 1974, gage height, 55.0 ft (16.76 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents observed, 6,030 acre-ft (7.43 hm^3) June 1, July 1, elevation, 2,983.5 ft (909.37 m); minimum observed, 3,410 acre-ft (4.20 hm^3) Sept. 30 (estimated).

06116500 BAIR RESERVOIR.--Lat 46°34'47", long 110°33'24", in SE¼SE¼SW¼ sec.35, T.10 N., R.9 E., Meagher County, Hydrologic Unit 10040201, at dam on North Fork Musselshell River, 1 mi (2 km) northwest of Delpine and 14 mi (23 km) northwest of Martinsdale. DRAINAGE AREA, 48.6 mi^2 (125.9 km^2). PERIOD OF RECORD, November, 1939 to September 1960 (total contents), winter records incomplete some years during 1951-59, October 1960 to current year (usable contents). Records for November 1939, published only WSP 1309. Prior to October 1969, published as "Durand Reservoir." Nonrecording gage read at or near middle and end of month. Datum of gage is at National Geodetic Vertical Datum of 1929 (levels by Montana Department of Natural Resources and Conservation).

Reservoir is formed by earthfill dam with concrete spillway completed in 1939. Usable capacity, 7,000 acre-ft (8.63 hm^3) between elevation 5,253.2 ft (1,601.18 m), bottom of inlet, and 5,325.0 ft (1,623.06 m), spillway crest. Dead storage, 24 acre-ft (29,600 m^3) below elevation 5,253.2 ft (1,601.18 m). Supplemental water can be diverted from Checkerboard Creek in S½ sec.5, T.9 N., R.9 E., but seldom used. Figures given herein represent usable contents. Water is used for irrigation. Records furnished by Montana Department of Natural Resources and Conservation. REVISED RECORDS, WSP 1729: Drainage area.

EXTREMES FOR PERIOD OF RECORD: Maximum contents observed, 7,390 acre-ft (9.11 hm^3) July 1, 1979, elevation, 5,326.3 ft (1,623.46 m); no storage July 31, 1961.

EXTREMES FOR CURRENT YEAR: Maximum contents observed, 7,390 acre-ft (9.11 hm^3) July 1, elevation, 5,326.3 ft (1,623.46 m); minimum observed, 4,380 acre-ft (5.40 hm^3) Sept. 30 (interpolated).

Smaller reservoirs in Missouri River basin in Montana--Continued

06119000 MARTINSDALE RESERVOIR.--Lat 46°27'17", long 110°16'02", in NE¼NW¼SE¼ sec.18, T.8 N., R.12 E., Wheatland County, Hydrologic Unit 10040201, at north dam 2 mi (3 km) east of Martinsdale, lat 46°26'33", long 110°15'30", in NE¼ sec.20, T.8 N., R.12 E., at south dam 3 mi (5 km) southeast of Martinsdale. PERIOD OF RECORD, November 1939 to September 1960 (total contents), winter records incomplete for some years during 1951-59, October 1960 to current year (usable contents). Records for November 1939, published only in WSP 1309. Nonrecording gage read at or near middle and end of month. Datum of gage is at National Geodetic Vertical Datum of 1929 (levels by Montana Department of Natural Resources and Conservation).

This is an offstream reservoir formed by two earthfill dams with concrete conduit and spillway completed in 1939. Stored water is diverted from South Fork Musselshell River in N½ sec.15, T.8 N., R.11 E., at a point 1 mi (2 km) west of Martindsale. Usable capacity, 23,110 acre-ft (28.5 hm³) between elevation 4,714.67 ft (1,437.031 m), bottom of outlet, and 4,779.0 ft (1,456.64 m), spillway crest. Dead storage, 73 acre-ft (90,000 m³) below elevation 4,714.67 ft (1,437.031 m). South Fork Musselshell River flow above diversion is supplemented at times with return flow from lands irrigated by water diverted from North Fork Musselshell River. Figures given herein represent usable contents. Water is used for irrigation. Records furnished by Montana Department of Natural Resources and Conservation.

EXTREMES FOR PERIOD OF RECORD: Maximum contents observed, 23,110 acre-ft (28.5 hm³) June 15, 1974, July 5, 1975, elevation, 4,779.0 ft (1,456.64 m); no storage July 31, Aug. 31, Sept. 30, Oct. 31, 1961.

EXTREMES FOR CURRENT YEAR: Maximum contents observed, 17,450 acre-ft (21.5 hm³) Aug. 1, elevation, 4,772.7 ft (1,454.72 m); minimum observed, 9,840 acre-ft (12.1 hm³) Sept. 30 (interpolated).

06122500 DEADMAN'S BASIN RESERVOIR.--Lat 46°20'24", long 109°24'35", in NE¼ sec.25, T.7 N., R.18 E., Wheatland County, Hydrologic Unit 10040201, at dam 6 mi (10 km) east of Shawmut. PERIOD OF RECORD, June 1941 to June 1955 (some contents may be total), July 1955 to current year (usable contents), incomplete 1942, 1951-59. Nonrecording gage read at or near middle and end of month. Datum of gage is at National Geodetic Vertical Datum of 1929 (levels by Montana Department of Natural Resources and Conservation).

This is an offstream reservoir formed by earthfill dam completed in 1941. Stored water is diverted from Musselshell River in NW¼ sec.8, T.7 N., R.17 E., 6 mi (10 km) northwest of Shawmut. Usable capacity, 72,220 acre-ft (89.0 hm³) between elevation 3,872.0 ft (1,180.19 m), bottom of outlet, and 3,921.0 ft (1,195.12 m), maximum design level. Prior to 1958, usable capacity was 52,500 acre-ft (64.7 hm³) at elevation 3,911.0 ft (1,192.07 m). Dead storage, 4,600 acre-ft (5.67 hm³) below elevation 3,872.0 ft (1,180.19 m). Figures given herein represent usable contents. Water is used for irrigation. Records furnished by Montana Department of Natural Resources and Conservation.

EXTREMES FOR PERIOD OF RECORD: Maximum contents observed, 73,240 acre-ft (90.3 hm³) June 7, 1978, elevation, 3,921.5 ft (1,195.27 m); minimum observed, 3,290 acre-ft (4.06 hm³) Oct. 31, 1961, elevation, 3,867.3 ft (1,178.75 m).

EXTREMES FOR CURRENT YEAR: Maximum contents observed, 71,350 acre-ft (88.0 hm³) May 31 (estimated); minimum observed, 46,670 acre-ft (57.5 hm³) Sept. 30 (estimated).

06136500 FRESNO RESERVOIR.--Lat 48°36'04", long 109°56'45", in SE¼ sec.19, T.33 N., R.14 E., Hill County, Hydrologic Unit 10050002, at dam on Milk River, 13 mi (21 km) west of Havre and at mile 440 (708 km). DRAINAGE AREA, 3,766 mi² (9,754 km²) of which 670 mi² (1,735 km²) is probably noncontributing. PERIOD OF RECORD, January 1940 to current year. Records prior to September 1940, published only in WSP 1309. March to May, 1952 daily elevations and contents, published in WSP 1260-B. April to July 1953 scattered daily elevations and contents, published in WSP 1320-B. Records of daily contents in files of Helena district office. Nonrecording gage read daily. Datum of gage is at National Geodetic Vertical Datum of 1929 (levels by Water and Power Resources Service).

Reservoir is formed by earthfill dam with concrete spillway completed in 1939. Usable capacity, 127,200 acre-ft (157 hm³) between elevation 2,530.00 ft (771.144 m), invert of tunnel inlet, and 2,575.00 ft (784.860 m), spillway crest. Elevation of maximum water surface is 2,591.00 ft (789.737 m), 243,600 acre-ft (300 hm³). Crest of dam is 2,595.00 ft (790.956 m). There are no gates in the spillway. Dead storage, 1,860 acre-ft (2.29 hm³) below elevation 2,530.00 ft (771.144 m). Figures given herein represent usable contents. Water is used for irrigation and recreation. Records furnished by Water and Power Resources Service. REVISED RECORDS, WSP 1729: Drainage area.

EXTREMES FOR PERIOD OF RECORD: Maximum contents observed, 154,000 acre-ft (190 hm³) Apr. 3, 1952, elevation, 2,579.35 ft (786.186 m), of which 26,800 acre-ft (33.0 hm³) was uncontrolled storage; no storage Feb. 18 to Mar. 6, 1950.

EXTREMES FOR CURRENT YEAR: Maximum contents observed, 137,000 acre-ft (169 hm³) Mar. 19, elevation, 2,576.65 ft (785.363 m); minimum observed, 55,350 acre-ft (68.2 hm³) Sept. 30 (interpolated).

06155000 NELSON RESERVOIR.--Lat 48°31'42", long 107°31'00", in SE¼ sec.14, T.32 N., R.32 E., Phillips County, Hydrologic Unit 10050004, at dam 10 mi (16 km) northwest of Saco. PERIOD OF RECORD, March 1928 to current year. Records prior to October 1940, published only in WSP 1309. Nonrecording gage read on first and last day of month and more often during high stages. Datum of gage is at National Geodetic Vertical Datum of 1929 (levels by Water and Power Resources Service).

This is an offstream reservoir formed by earthfill dam completed in 1922. Stored water is diverted from Milk River at Dodson Dam in SE¼ sec.26, T.31 N., R.26 E., 6 mi (10 km) west of Dodson. Usable capacity, 66,800 acre-ft (82.4 hm³) between elevation 2,200.0 ft (670.56 m), gate sill, and 2,223.0 ft (677.57 m), maximum design level. Dead storage, 18,650 acre-ft (23.0 hm³) below elevation 2,200.0 ft (670.56 m). Reservoir has never been operated to maximum capacity. Figures given herein represent usable contents. Water is used for irrigation, recreation, and wildlife. Records furnished by Water and Power Resources Service.

EXTREMES FOR PERIOD OF RECORD: Maximum contents observed, 60,570 acre-ft (74.7 hm³) July 12-14, 1965, elevation, 2,221.6 ft (677.14 m); minimum observed, 4,600 acre-ft (5.67 hm³) Mar. 31, 1937, elevation, 2,202.6 ft (671.35 m).

EXTREMES FOR CURRENT YEAR: Maximum contents observed, 54,680 acre-ft (67.4 hm³) May 31, June 1, elevation, 2,220.2 ft (676.72 m); minimum observed, 40,280 acre-ft (49.7 hm³) Aug. 21, 24, 27, elevation, 2,216.5 ft (675.59 m).

06204000 MYSTIC LAKE.--Lat 45°13'30", long 109°45'36", in sec.9, T.7 S., R.16 E., (unsurveyed), Stillwater County, Hydrologic Unit 10070005, at dam on West Rosebud Creek, 15 mi (24 km) southwest of Roscoe and 25 mi (40 km) southwest of Absarokee. DRAINAGE AREA, 46.9 mi^2 (121.5 km^2). PERIOD OF RECORD, January 1936 to current year. Records prior to September 1939, published only in WSP 1309. Record of daily elevations since October 1965 available in files of Helena district office. Water-stage recorder. Prior to October 1965, only monthend figures furnished. Datum of gage is at National Geodetic Vertical Datum of 1929 (levels by The Montana Power Co.).

Reservoir is formed by thin-section reinforced concrete arch dam completed in 1925. Usable capacity, 21,000 acre-ft (25.9 hm^3) between elevation 7,612.00 ft (2,320.138 m), minimum operating level, and 7,673.50 ft (2,338.883 m), top of 3.5 ft (1.07 m) stop logs. No dead storage. Figures given herein represent usable contents. Water is used for power development and recreation. Records furnished by The Montana Power Co. REVISED RECORDS, WSP 1916: Drainage area.

EXTREMES FOR PERIOD OF RECORD: Maximum contents observed, 21,070 acre-ft (26.0 hm^3) July 31, 1947, elevation, 7,673.68 ft (2,338.938 m); minimum observed, 260 acre-ft (321,000 m^3) Apr. 4, 1938, elevation, 7,612.93 ft (2,320.421 m).

EXTREMES FOR CURRENT YEAR: Maximum contents observed, 20,920 acre-ft (25.8 hm^3) Aug. 20, elevation, 7,673.32 ft (2,338.828 m); minimum observed, 1,640 acre-ft (2.02 hm^3) May 10, elevation, 7,617.67 ft (2,321.866 m).

06212000 COONEY RESERVOIR.--Lat 45°26'47", long 109°11'57", in N½NE¼ sec.36, T.4 S., R.20 E., Carbon County, Hydrologic Unit 10070006, at dam on Red Lodge Creek, 1 mi (2 km) upstream from Cottonwood Creek and 6.6 mi (10.6 km) west of Boyd. DRAINAGE AREA, 206 mi^2 (534 km^2). PERIOD OF RECORD, May 1937 to September 1960 (total contents), incomplete 1954-60, October 1960 to current year (usable contents). Records prior to October 1939, published only in WSP 1309. Nonrecording gage read at or near middle and end of month. Datum of gage is at National Geodetic Vertical Datum of 1929.

Reservoir is formed by earthfill dam with concrete spillway completed in 1936. Usable capacity, 27,400 acre-ft (33.8 hm^3) between elevation 4,175.0 ft (1,272.54 m), bottom of tunnel, and 4,250.0 ft (1,295.40 m), top of 4 ft (1.2 m) flashboards. Dead storage, 120 acre-ft (148,000 m^3) below elevation 4,175.0 ft (1,272.54 m). Figures given herein represent usable contents. Water is used for irrigation. Records furnished by Montana Department of Natural Resources and Conservation. REVISED RECORDS, WSP 1729: Drainage area.

EXTREMES FOR PERIOD OF RECORD: Maximum contents observed, 26,990 acre-ft (33.3 hm^3) June 15, 1967, elevation, 4,249.5 ft (1,295.25 m); minimum observed, 120 acre-ft (148,000 m^3) Sept. 30, 1960, elevation, 4,175.0 ft (1,272.54 m).

EXTREMES FOR CURRENT YEAR: Maximum contents observed, 21,890 acre-ft (27.0 hm^3) July 2, elevation, 4,243.1 ft (1,293.30 m); minimum observed, 12,000 acre-ft (14.8 hm^3) Apr. 15, elevation, 4,227.6 ft (1,288.57 m).

06307000 TONGUE RIVER RESERVOIR.--Lat 45°07'48", long 106°46'13", in SE¼SE¼NE¼ sec.13, T.8 W., R.40 E., Big Horn County, Hydrologic Unit 10090101, at dam on Tongue River, 4 mi (6 km) upstream from Post Creek, 7 mi (11 km) northeast of Decker, and at mile 162.8 (261.9 km). DRAINAGE AREA, 1,770 m^2 (4,584 km^2). PERIOD OF RECORD, December 1938 to current year. Records prior to September 1939, published only in WSP 1309 and those for January, February 1956, published only in WSP 1729. Nonrecording gage read daily but only weekly readings supplied. Datum of gage is at National Geodetic Vertical Datum of 1929 (levels by Water and Power Resources Service).

Reservoir is formed by earthfill dam with concrete spillway completed in May 1939. Usable capacity, 68,040 acre-ft (83.9 hm^3) between elevation 3,374.4 ft (1,028.52 m), bottom of outlet, and 3,424.4 ft (1,043.76 m), spillway crest. Prior to October 1947, usable contents was 73,950 acre-ft (91.2 hm^3) at same elevations, due to sedimentation study. Dead storage, 1,400 acre-ft (1.73 hm^3) below elevation, 3,374.4 ft (1,028.52 m). Figures given herein represent usable contents. Water is used for irrigation. Records furnished by Montana Department of Natural Resources and Conservation. REVISED RECORDS, WSP 1309: 1947-50. WSP 1729: 1951, drainage area.

EXTREMES FOR PERIOD OF RECORD: Maximum contents observed, 77,040 acre-ft (95.0 hm^3) May 26, 1978, elevation, 3,426.8 ft (1,044.49 m), from extention of rating curve; no storage October 1939 to February 1940.

EXTREMES FOR CURRENT YEAR: Maximum contents observed, 60,420 acre-ft (74.5 hm^3) June 29, July 1, elevation, 3,422.1 ft (1,043.06 m); minimum observed, 13,500 acre-ft (16.6 hm^3) Mar. 8-12, elevation, 3,397.6 ft (1,035.59 m).

MISSOURI RIVER BASIN

Smaller reservoirs in Missouri River basin in Montana--Continued

Monthend contents, in acre-feet, water year October 1978 to September 1979

Date	Lima Reservoir	Ruby River Reservoir	Willow Creek Reservoir	Hebgen Lake	Ennis Lake	Middle Creek Reservoir	Lake Helena
Sept. 30	b22,440	a13,120	b 7,790	339,700	38,080	a4,180	10,450
Oct. 31	26,430	a16,910	b 6,500	294,200	38,000	a3,530	10,890
Nov. 30	29,330	a20,770	b 7,220	245,200	38,000	a3,310	10,890
Dec. 31	31,120	a24,770	b 8,370	241,400	33,650	a3,310	10,890
Jan. 31	31,750	a25,460	b 11,230	240,700	34,320	a3,470	11,110
Feb. 28	32,260	29,100	b 14,540	241,000	34,690	a3,440	11,110
Mar. 31	32,940	a31,180	b 17,730	223,300	34,580	a3,730	10,890
Apr. 30	50,980	a33,520	b 17,730	183,300	37,240	a3,780	750
May 31	64,900	a39,140	b 17,730	250,600	35,130	a7,350	10,670
June 30	44,920	b30,280	b 14,540	328,100	38,460	a7,990	11,110
July 31	24,620	b17,010	b 8,940	341,300	35,360	a6,100	10,890
Aug. 31	7,030	a 7,210	b 7,220	338,000	37,620	a3,820	10,240
Sept. 30	1,170	c 1,000	b 6,500	326,800	36,630	3,170	10,890

Date	Hauser Lake	Holter Lake	Smith River Reservoir	Gibson Reservoir	Pishkun Reservoir	Willow Creek Reservoir	Nilan Reservoir
Sept. 30	51,420	80,310	b 9,910	49,100	19,810	25,660	6,710
Oct. 31	52,150	80,970	a 10,360	59,040	19,810	25,250	6,920
Nov. 30	52,150	81,820	a 10,390	66,690	19,680	25,530	7,500
Dec. 31	52,150	76,140	b 10,390	71,320	19,680	25,530	7,500
Jan. 31	52,520	81,390	b 10,270	71,320	19,680	25,530	a8,270
Feb. 28	52,520	79,500	a 10,380	70,980	19,680	25,530	a8,960
Mar. 31	52,150	80,120	b 10,300	65,300	19,550	26,890	9,530
Apr. 30	25,500	79,500	b 11,500	60,570	25,700	28,250	b9,740
May 31	51,790	76,420	b 11,560	84,290	29,980	30,350	9,480
June 30	52,520	81,630	b 11,560	98,660	30,420	29,910	8,230
July 31	52,150	81,590	b 9,610	50,030	19,170	21,710	a4,340
Aug. 31	51,050	81,390	b 7,650	7,760	22,390	19,700	a1,590
Sept. 30	52,150	81,630	b 5,940	9,250	20,200	23,350	525

Date	Lower Two Medicine Lake	Four Horns Lake	Swift Reservoir	Lake Frances	Ackley Lake	Bair Reservoir	Martinsdale Reservoir
Sept. 30	a11,760	a13,150	12,010	93,990	b4,040	b5,300	b12,360
Oct. 31	-	13,410	12,110	95,010	b4,040	a5,810	a12,030
Nov. 30	-	-	15,210	94,600	b3,930	a5,750	a12,650
Dec. 31	-	-	17,670	94,500	b3,930	b5,670	a12,660
Jan. 31	-	-	19,450	94,190	b3,830	b5,650	b12,500
Feb. 28	-	-	20,350	93,480	b3,830	a5,710	a12,690
Mar. 31	-	-	21,950	94,240	b3,930	b4,540	b11,460
Apr. 30	c10,500	c13,500	21,910	98,700	b4,700	b6,680	b11,790
May 31	a12,460	b13,510	27,520	104,400	b6,030	b7,150	b14,300
June 30	a12,370	a12,870	24,900	97,260	b6,030	b7,390	b15,890
July 31	b10,120	11,660	16,680	79,720	b4,700	b6,850	b17,450
Aug. 31	a 5,560	a13,180	9,440	70,630	b3,520	b5,670	b11,210
Sept. 30	b 1,010	b13,200	6,480	68,510	b3,410	b4,340	b 9,790

Date	Deadmans Basin Reservoir	Fresno Reservoir	Nelson Reservoir	Mystic Lake	Cooney Reservoir	Tongue River Reservoir
Sept 30	b54,410	c85,700	49,840	19,940	b16,630	20,780
Oct. 31	-	80,860	51,440	19,930	b14,300	30,360
Nov. 30	-	78,610	49,440	19,730	a14,090	37,010
Dec. 31	-	b77,220	47,480	19,830	a14,060	a25,770
Jan. 31	-	74,280	45,550	19,830	a14,060	20,080
Feb. 28	a49,830	69,740	44,020	15,100	a13,600	18,020
Mar. 31	a55,560	129,500	45,160	8,150	a12,670	28,760
Apr. 30	a61,030	a130,200	46,700	2,670	b18,040	36,800
May 31	c71,350	127,500	54,680	6,120	b19,520	47,720
June 30	-	a105,900	45,930	18,760	a21,740	60,100
July 31	-	67,330	42,880	20,800	b18,040	44,400
Aug. 31	-	59,060	41,020	20,800	16,820	28,420
Sept. 30	c46,670	b55,070	45,550	19,640	a14,300	15,000

a Interpolated
b Figure of contents for first day of following month.
c Estimate

06334500 LITTLE MISSOURI RIVER AT CAMP CROOK, SD

LOCATION.--Lat 45°32'49", long 103°58'23", in SW¼ sec.2, T.18 N., R.1 E., Harding County, Hydrologic Unit 10110201, on left bank 15 ft (5 m) upstream from bridge on State Highway 20 at east edge of Camp Crook.

DRAINAGE AREA.--1,970 mi² (5,100 km²), approximately.

PERIOD OF RECORD.--September 1903 to November 1906, May 1956 to current year. Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WSP 1309: 1904. WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 3,108.98 ft (947.617 m) National Geodetic Vertical Datum of 1929. Sept. 2, 1903, to Nov. 30, 1906, nonrecording gage at site 0.5 mi (0.8 km) upstream at different datum. May 1956 to Oct. 8, 1957, nonrecording gage at site 15 ft (5 m) downstream, and Oct. 9, 1957, to Sept. 30, 1976, water-stage recorder at present site both at datum 2.00 ft (0.610 m) higher.

REMARKS.--Records good except those for winter periods, which are poor. Small diversions above station for irrigation.

AVERAGE DISCHARGE.--26 years, 145 ft³/s (4.106 m³/s) 105,100 acre-ft/yr (130 hm³/yr); median of yearly mean discharges, 110 ft³/s (3.115 m³/s), 79,700 acre-ft/yr (98.3 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,420 ft³/s (267 m³/s) Mar. 24, 1978, gage height, 16.90 ft (5.151 m), present datum; no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of 1952 reached a stage of about 18 ft (5.5 m), present datum, from local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,590 ft³/s (73.3 m³/s) Mar. 27; maximum gage height, 10.43 ft (3.179 m) Mar. 21 (backwater from ice), only peak above base of 1,000 ft³/s (28.3 m³/s); minimum daily discharge, 1.5 ft³/s (0.042 m³/s) Jan. 14, Mar. 3.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	13	11	5.0	3.5	2.5	1040	125	55	41	205	9.1
2	11	13	10	4.0	3.0	2.0	869	106	48	56	98	9.1
3	11	13	9.0	4.0	3.0	1.5	708	95	42	43	75	15
4	11	12	10	3.0	3.0	2.0	629	85	45	39	58	16
5	11	11	9.0	3.0	3.0	2.0	539	78	37	47	45	15
6	13	11	9.0	3.0	3.5	2.0	476	71	28	35	33	12
7	10	12	8.0	2.5	3.5	2.0	491	65	30	28	24	9.5
8	11	12	7.0	2.5	4.0	2.0	419	59	30	22	20	7.8
9	11	14	7.0	2.5	4.5	2.0	566	58	21	19	18	6.8
10	11	13	8.0	2.5	5.0	6.0	632	57	20	17	17	6.5
11	11	12	10	2.5	4.5	10	575	55	20	14	15	6.6
12	10	10	11	2.5	4.5	20	729	52	19	12	13	6.8
13	11	10	10	2.0	4.0	40	651	57	14	14	29	7.2
14	15	11	10	1.5	4.0	50	584	65	11	21	44	6.8
15	21	12	10	2.0	3.5	70	572	55	13	24	49	6.0
16	17	12	10	2.0	2.5	100	590	49	12	21	37	4.9
17	13	13	10	2.0	2.5	150	648	45	12	131	32	4.3
18	11	12	10	2.5	3.0	200	593	44	12	123	22	4.3
19	10	11	10	3.0	3.0	250	714	43	11	65	19	4.3
20	10	9.0	10	4.0	3.0	400	602	38	13	52	20	3.8
21	9.5	9.0	10	5.0	3.0	700	478	36	18	41	20	3.8
22	9.5	9.5	10	4.5	3.0	900	410	36	13	29	32	3.8
23	9.5	10	10	4.5	2.5	1100	342	35	21	23	26	3.2
24	10	11	10	4.0	2.5	1300	315	34	22	22	21	2.4
25	10	11	10	4.0	2.5	1500	275	31	39	36	33	2.2
26	11	10	10	4.0	3.0	2000	242	31	40	49	33	2.3
27	11	10	9.0	4.0	3.0	2410	208	33	41	25	30	2.3
28	18	11	9.0	4.0	2.5	2320	177	32	36	23	27	3.0
29	16	12	8.0	3.5	---	2090	157	34	39	41	20	3.2
30	14	12	7.0	3.5	---	2200	139	37	39	144	16	2.9
31	13	---	6.0	3.5	---	1240	---	46	---	367	12	---
TOTAL	371.5	341.5	288.0	100.5	92.5	19074.0	15370	1689	801	1624	1143	191.1
MEAN	12.0	11.4	9.29	3.24	3.30	615	512	54.5	26.7	52.4	36.9	6.37
MAX	21	14	11	5.0	5.0	2410	1040	125	55	367	205	16
MIN	9.5	9.0	6.0	1.5	2.5	1.5	139	31	11	12	12	2.2
AC-FT	737	677	571	199	183	37830	30490	3350	1590	3220	2270	379

CAL YR 1978 TOTAL 163110.3 MEAN 447 MAX 8560 MIN 3.0 AC-FT 323500
WTR YR 1979 TOTAL 41086.1 MEAN 113 MAX 2410 MIN 1.5 AC-FT 81490

06335000 LITTLE BEAVER CREEK NEAR MARMARTH, ND

LOCATION.--Lat 46°16'29", long 103°58'33", in NE¼ sec.7, T.132 N., R.106 W., Bowman County, Hydrologic Unit 10110201, on right bank 150 ft (46 m) downstream from concreted ford, 0.8 mi (1.3 km) downstream from Corral Creek, 3 mi (5 km) southwest of Marmarth, and 5 mi (8 km) upstream from mouth.

DRAINAGE AREA.--587 mi² (1,520 km²), approximately.

PERIOD OF RECORD.--April 1938 to September 1979 (discontinued).

REVISED RECORDS (WATER YEARS).--WSP 1279: 1939(M), 1940, 1943-44(M), 1945, 1948.

GAGE.--Water-stage recorder. Datum of gage is 2,733.14 ft (833.061 m) National Geodetic Vertical Datum of 1929. June 28, 1951, to May 17, 1968, water-stage recorder 300 ft (90 m) upstream at datum 10.00 ft (3.048 m) higher. See WSP 1729 or 1917 for history of changes prior to June 28, 1951.

REMARKS.--Records good except those for the winter period, which are fair.

AVERAGE DISCHARGE.--41 years, 44.6 ft³/s (1.263 m³/s), 32,310 acre-ft/yr (39.8 hm³/yr), median of yearly mean discharges, 31 ft³/s (0.878 m³/s), 22,500 acre-ft/yr (27.7 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,700 ft³/s (360 m³/s) Apr. 6, 1952, gage height, 13.9 ft (4.24 m), from floodmark, site and datum then in use, from rating curve extended above 4,500 ft³/s (127 m³/s) on basis of slope-area measurement of peak flow; no flow at times in most years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,270 ft³/s (36.0 m³/s) Apr. 10, gage height, 14.08 ft (4.292 m), no peak above base of 2,000 ft³/s (56.6 m³/s); maximum gage height, 14.43 ft (4.398 m) Mar. 25 (backwater from ice); minimum daily discharge, 1.5 ft³/s (0.042 m³/s) on many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.2	5.2	2.4	1.5	1.5	2.5	366	54	31	16	6.3	3.8
2	4.2	5.1	2.4	1.5	1.5	3.0	286	53	26	11	6.5	3.4
3	4.4	4.9	2.4	1.5	1.5	3.0	256	51	23	8.8	6.4	2.8
4	4.8	4.8	2.4	1.5	1.5	3.0	237	43	21	8.6	4.6	3.1
5	4.6	4.7	2.5	1.5	1.5	3.0	206	42	18	13	4.4	3.1
6	4.6	4.5	2.5	1.5	1.6	3.0	190	54	18	16	4.6	2.7
7	4.5	4.3	2.5	1.5	1.6	3.0	386	53	20	9.4	4.4	2.7
8	4.8	4.1	2.5	1.5	1.6	6.0	394	46	37	3.8	4.4	2.7
9	4.7	4.0	2.5	1.5	1.6	10	545	42	31	7.5	4.2	2.9
10	4.9	3.5	2.5	1.5	1.6	10	927	40	25	5.4	4.2	134
11	5.0	3.5	3.0	1.5	2.0	15	675	39	22	2.8	4.2	80
12	5.4	3.5	3.5	1.5	2.0	20	442	38	20	3.8	4.4	43
13	5.2	3.5	4.0	1.5	2.0	25	281	39	16	7.4	4.0	19
14	6.7	3.5	5.0	1.5	2.0	30	297	40	15	6.8	3.6	8.8
15	6.0	3.3	4.5	1.5	2.0	30	530	37	14	6.1	3.4	6.7
16	5.4	3.2	4.5	1.5	2.0	30	640	34	11	4.9	3.8	5.2
17	5.2	3.1	4.5	1.5	2.0	150	720	32	9.3	2.2	4.2	4.4
18	5.2	3.2	4.0	1.5	2.0	350	635	30	9.0	3.0	4.6	4.0
19	5.4	3.0	4.0	1.5	2.0	300	431	30	11	2.0	4.9	3.4
20	5.3	2.8	3.5	1.5	2.5	250	228	29	22	1.9	4.2	2.9
21	5.2	2.8	3.5	1.5	2.5	300	164	28	30	5.2	4.9	2.9
22	5.2	2.6	3.5	1.5	2.5	300	129	27	17	4.8	4.9	2.9
23	5.2	2.6	4.0	1.5	2.5	450	115	24	57	4.9	4.2	2.9
24	5.5	2.4	4.5	1.5	2.5	700	102	23	18	4.8	4.2	2.5
25	5.6	2.4	4.5	1.5	2.5	882	88	22	11	2.8	4.0	2.8
26	4.8	2.4	4.0	1.5	2.5	456	78	23	9.2	19	4.0	2.3
27	5.2	2.4	3.5	1.5	2.5	410	70	23	7.5	40	4.4	2.4
28	5.6	2.4	3.0	1.5	2.5	396	66	22	8.6	26	29	2.3
29	5.5	2.4	2.5	1.5	---	336	63	21	13	15	11	2.3
30	5.4	2.4	2.0	1.5	---	400	58	27	23	9.5	6.7	2.1
31	5.2	---	1.5	1.5	---	396	---	33	---	7.2	4.4	---
TOTAL	159.9	102.5	101.6	46.5	56.0	6272.5	9603	1099	593.6	279.6	173.0	364.0
MEAN	5.16	3.42	3.28	1.50	2.00	202	320	35.5	19.8	9.02	5.58	12.1
MAX	6.7	5.2	5.0	1.5	2.5	882	927	54	57	40	29	134
MIN	4.2	2.4	1.5	1.5	1.5	2.5	58	21	7.5	1.9	3.4	2.1
AC-FT	317	203	202	92	111	12440	19050	2180	1180	555	343	722

CAL YR 1978 TOTAL 39684.7 MEAN 109 MAX 5870 MIN 1.0 AC-FT 78710
WTR YR 1979 TOTAL 18851.2 MEAN 51.6 MAX 927 MIN 1.5 AC-FT 37390

06336447 DUCK CREEK NEAR WIBAUX, MT

LOCATION.--Lat 46°52'30", long 104°09'18", in SW¼SW¼SW¼ sec.17, T.13 N., R.60 W., Wibaux County, Hydrologic Unit 10110204, on right bank, and 9.5 mi (15.3 km) southeast of Wibaux.

DRAINAGE AREA.--46.5 mi^2 (120.4 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1978 to September 1979.

GAGE.--Water-stage recorder.

REMARKS.--Water-discharge records poor.

EXTREMES FOR CURRENT PERIOD.--March to September 1978: Peak discharges above base of 20 ft^3/s (0.57 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Mar. 21	2245	a*580	16.4	Unknown		July 6	0130	80	2.27	2.97	0.905
Mar. 27	2317	a200	5.66	Unknown							

No flow for several months.

Water year 1979: Peak discharges above base of 20 ft^3/s (0.57 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Mar. 27	--	35	0.99	backwater from ice		Apr. 18	0300	40	1.13	a*4.14	1.262
Apr. 10	1500	*151	4.23	3.13	0.954						

a - Backwater from Beaver Creek.

No flow for many months.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	18	2.8	.16	.00	.02	.00
2	.00	.00	.00	.00	.00	.00	16	1.7	.15	.00	.02	.00
3	.00	.00	.00	.00	.00	.00	15	1.3	.12	.00	.00	.00
4	.00	.00	.00	.00	.00	.00	8.0	.90	.11	.00	.00	.00
5	.00	.00	.00	.00	.00	.00	5.0	.75	.09	.00	.00	.00
6	.00	.00	.00	.00	.00	.00	5.0	.78	.07	.00	.00	.00
7	.00	.00	.00	.00	.00	.00	20	.88	.07	.00	.00	.00
8	.00	.00	.00	.00	.00	.00	50	.90	.05	.00	.00	.00
9	.00	.00	.00	.00	.00	.00	125	.88	.04	.00	.00	.00
10	.00	.00	.00	.00	.00	.00	61	.78	.03	.00	.00	.00
11	.00	.00	.00	.00	.00	.00	33	.74	.02	.00	.00	.00
12	.00	.00	.00	.00	.00	.00	13	.64	.01	.00	.00	.00
13	.00	.00	.00	.00	.00	.00	11	.56	.01	.00	.00	.00
14	.00	.00	.00	.00	.00	.00	11	.54	.00	.00	.00	.00
15	.00	.00	.00	.00	.00	.00	10	.53	.00	.00	.00	.00
16	.00	.00	.00	.00	.00	.00	17	.47	.00	.00	.00	.00
17	.00	.00	.00	.00	.00	.00	30	.35	.00	.00	.00	.00
18	.00	.00	.00	.00	.00	.00	35	.30	.00	.00	.00	.00
19	.00	.00	.00	.00	.00	3.0	11	.31	.00	.00	.00	.00
20	.00	.00	.00	.00	.00	6.0	8.9	.28	.00	.00	.00	.00
21	.00	.00	.00	.00	.00	4.0	6.5	.27	.00	.00	.00	.00
22	.00	.00	.00	.00	.00	5.0	5.0	.19	.00	.00	.00	.00
23	.00	.00	.00	.00	.00	5.0	4.5	.15	.00	.00	.00	.00
24	.00	.00	.00	.00	.00	6.0	4.4	.13	.00	.10	.00	.00
25	.00	.00	.00	.00	.00	8.0	4.2	.15	.00	.02	.00	.00
26	.00	.00	.00	.00	.00	10	4.1	.15	.00	.09	.00	.00
27	.00	.00	.00	.00	.00	15	4.1	.11	.00	.02	.00	.00
28	.00	.00	.00	.00	.00	25	3.7	.09	.00	.02	.00	.00
29	.00	.00	.00	.00	---	25	3.0	.12	.00	.02	.00	.00
30	.00	.00	.00	.00	---	20	3.2	.12	.00	.03	.00	.00
31	.00	---	.00	.00	---	19	---	.13	---	.02	.00	---
TOTAL	.00	.00	.00	.00	.00	151.00	545.6	18.00	.93	.32	.04	.00
MEAN	.000	.000	.000	.000	.000	4.87	18.2	.58	.031	.010	.001	.000
MAX	.00	.00	.00	.00	.00	25	125	2.8	.16	.10	.02	.00
MIN	.00	.00	.00	.00	.00	.00	3.0	.09	.00	.00	.00	.00
AC-FT	.00	.00	.00	.00	.00	300	1080	36	1.8	.6	.08	.00

WTR YR 1979 TOTAL 715.89 MEAN 1.96 MAX 125 MIN .00 AC-FT 1420

06336447 DUCK CREEK NEAR WIBAUX, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--March 1978 to September 1979.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)
APR									
10...	1100	38	840	7.4	4.0	220	110	78	7.1
25...	1500	4.3	1900	8.1	11.0	730	490	110	110

DATE	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)
APR									
10...	--	--	--	110	320	4.5	.2	9.2	486
25...	230	3.7	18	240	980	6.5	.1	17	1620

DATE	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO) (01060)	STRON-TIUM, DIS-SOLVED (UG/L AS SR) (01080)
APR								
10...	.66	49.9	.99	390	--	--	1	--
25...	2.20	18.8	1.6	920	200	40	2	150

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPER-ATURE (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)
MAR					
21...	1725	.5	3.4	28	.26
22...	1135	.5	5.3	31	.44
28...	1625	.0	27	52	3.8
30...	1445	.0	21	43	2.4
APR					
09...	1650	7.0	126	121	41
14...	1220	6.0	11	81	2.4

06336447 DUCK CREEK NEAR WIBAUX, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	TEMPER-ATURE (DEG C) (00010)
MAR				
20...	1615	6.6	1010	.5
21...	1725	3.4	725	.5
22...	1135	5.3	700	.5
23...	0945	4.7	640	.5
27...	1030	18	500	.0
28...	1625	27	610	.0
29...	1345	26	650	.0
30...	1445	21	750	.0
APR				
03...	1715	14	700	.0
04...	1645	5.3	1090	.0
09...	1650	126	750	7.0
10...	1100	38	840	4.0
14...	1220	11	1150	6.0
18...	1115	35	1600	15.0
20...	1300	8.9	1200	10.5
25...	1500	4.3	1900	11.0
MAY				
02...	1020	2.0	1000	9.0
24...	1300	.15	700	11.0
JUL				
25...	1150	.03	800	22.0

06336500 BEAVER CREEK AT WIBAUX, MT

LOCATION.--Lat 46°59'24", long 104°11'00", in NE¼NE¼ sec.12, T.14 N., R.59 E., Wibaux County, Hydrologic Unit 10110204, on left bank 20 ft (6.1 m) upstream from bridge on old U.S. Highway 10, at Wibaux, 12 mi (19 km) upstream from Little Beaver Creek, and at mile 62.5 (100.6 km).

DRAINAGE AREA.--351 mi² (909 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1938 to June 1969, October 1978 to September 1979.

REVISED RECORDS.--WSP 1309: 1943, 1947-48. WSP 1509: 1942(M), 1944-45, 1946(M).

GAGE.--Water-stage recorder. Altitude of gage is 2,650 ft (808 m), by barometer. Prior to Sept. 21, 1940, nonrecording gages at site about 500 ft (152 m) upstream at different datums.

REMARKS.--Water-discharge records good except those for winter period, which are poor. Several known diversions for irrigation above station.

AVERAGE DISCHARGE.--31 years (1938-68, 1979), 22.6 ft³/s (0.640 m³/s), 16,370 acre-ft/yr (20.2 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,780 ft³/s (107 m³/s) Mar. 21, 1939, gage height, 10.8 ft (3.29 m), site and datum then in use; maximum gage height observed, 13.44 ft (4.097 m) Mar. 24, 1943 (ice jam); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 7, 1929, reached a discharge of about 30,000 ft³/s (850 m³/s), from the average of three independent indirect measurements made at different sites. Flood in 1872 reported similar in magnitude. Flood in June 1921, reached a stage of about 8.6 ft (2.62 m) lower than 1929 (discharge, about 10,000 ft³/s (283 m³/s), estimated on basis of cross-section and information from local residents).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,280 ft³/s (36.2 m³/s) Apr. 18, gage height, 10.89 ft (3.319 m); minimum, 0.09 ft³/s (0.003 m³/s) Sept. 21, gage height, 5.40 ft (1.646 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.2	6.9	2.9	1.3	1.5	3.7	190	53	13	3.5	3.9	.78
2	.96	6.4	2.8	1.3	1.6	3.7	185	46	13	4.2	3.5	.60
3	1.2	6.9	2.9	1.3	1.6	3.5	175	41	13	3.1	3.5	.60
4	1.4	7.9	3.2	1.2	1.8	4.0	170	37	12	2.5	3.1	.78
5	1.4	6.9	3.1	1.3	2.0	4.5	160	35	12	3.1	2.8	.60
6	2.2	6.4	3.1	1.3	2.7	5.0	155	36	12	3.1	3.1	.60
7	2.2	7.9	3.0	1.4	2.6	5.4	214	33	11	2.8	2.8	.78
8	2.2	7.4	3.0	1.5	2.7	5.6	306	33	11	2.5	2.5	.78
9	1.9	6.8	2.9	1.5	2.8	5.2	391	30	11	2.8	1.9	.78
10	1.9	6.0	3.1	1.4	2.8	5.0	629	27	11	2.5	2.2	.60
11	1.9	5.4	3.6	1.3	2.7	5.6	791	27	11	2.2	2.2	.60
12	1.9	5.0	4.3	1.1	2.8	6.0	566	27	11	2.6	2.2	1.4
13	2.2	4.8	4.2	1.1	2.9	6.2	320	26	10	3.1	1.6	2.2
14	1.9	4.5	4.2	1.0	2.7	7.2	209	25	7.9	2.8	1.4	2.2
15	1.9	4.2	3.9	.90	2.6	7.9	170	24	6.4	2.2	1.2	2.2
16	2.2	3.9	3.4	.90	2.5	16	244	24	5.9	2.2	1.2	1.6
17	2.2	3.7	3.1	1.0	2.7	17	621	22	5.9	2.2	1.6	.60
18	2.2	3.5	2.8	1.1	2.9	17	1040	21	5.5	1.9	2.2	.46
19	1.9	3.4	2.5	1.3	3.0	18	601	20	5.5	1.8	.96	.46
20	1.6	3.2	2.3	1.3	3.4	18	306	19	5.9	1.4	.60	.36
21	1.4	3.0	2.3	1.5	3.3	18	199	18	5.9	1.2	.46	.20
22	1.4	3.1	2.3	1.4	3.2	19	144	17	5.9	1.4	.36	.20
23	1.9	3.2	2.3	1.3	3.1	40	119	16	5.0	63	.36	.20
24	2.5	3.3	2.3	1.4	3.0	48	99	16	5.0	20	.46	.36
25	3.5	3.5	2.2	1.5	3.2	54	86	16	5.0	19	.36	.46
26	6.9	3.2	2.2	1.5	3.4	66	80	14	4.6	14	.46	.36
27	7.4	3.0	2.1	1.5	3.7	64	76	13	5.0	11	.60	.46
28	6.9	3.3	2.1	1.5	3.7	110	69	13	5.5	7.4	.96	.96
29	6.9	3.4	2.0	1.4	---	99	65	14	5.0	6.9	.60	.96
30	6.6	3.0	1.8	1.4	---	130	56	14	4.6	6.4	.60	.96
31	6.9	---	1.4	1.4	---	200	---	13	---	5.0	.60	---
TOTAL	88.76	143.1	87.3	40.30	76.9	1012.5	8436	770	245.5	207.8	50.28	24.10
MEAN	2.86	4.77	2.82	1.30	2.75	32.7	281	24.8	8.18	6.70	1.62	.80
MAX	7.4	7.9	4.3	1.5	3.7	200	1040	53	13	63	3.9	2.2
MIN	.96	3.0	1.4	.90	1.5	3.5	56	13	4.6	1.2	.36	.20
AC-FT	176	284	173	80	153	2010	16740	1530	487	412	100	48

WTR YR 1979 TOTAL 11184.54 MEAN 30.6 MAX 1040 MIN .20 AC-FT 22180

06336500 BEAVER CREEK AT WIBAUX, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1978 to September 1979.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L) (00310)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)
OCT												
23...	1500	2.2	1	2460	8.1	17.0	8.0	9.1	85	--	690	280
NOV												
16...	1030	3.8	0	2710	8.2	-3.0	.5	11.2	85	--	690	270
DEC												
14...	1400	4.2	0	2860	8.1	6.0	.0	10.6	80	--	820	360
JAN												
11...	1100	1.3	0	2780	7.8	-13.0	.5	9.6	73	--	760	400
FEB												
27...	1400	3.7	70	2720	7.9	-10.0	.0	11.3	85	--	700	340
MAR												
29...	1100	99	0	1025	7.6	-3.0	.5	10.8	84	--	290	160
APR												
10...	1700	653	3	895	7.9	10.0	2.5	10.6	87	4.6	260	140
MAY												
17...	1700	23	1	2320	8.3	15.0	15.0	8.6	93	--	680	300
JUN												
14...	1700	7.4	1	2500	8.1	22.0	21.0	6.8	84	--	620	360
JUL												
11...	1100	2.1	2	2400	8.0	23.5	21.5	7.7	96	--	650	260
AUG												
16...	1000	1.2	0	2120	8.0	24.0	17.5	7.1	82	--	590	200
SEP												
19...	1600	.45	0	2890	8.1	26.0	19.0	8.2	97	--	560	240

DATE	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	BROMIDE DIS-SOLVED (MG/L AS BR) (71870)	IODIDE, DIS-SOLVED (MG/L AS I) (71865)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)
OCT												
23...	120	95	370	6.1	10	410	1000	9.1	.2	1.2	3.0	9.7
NOV												
16...	110	100	380	6.3	8.6	420	1000	8.8	.2	--	--	8.5
DEC												
14...	130	120	400	6.1	11	460	1100	14	.2	.1	.00	10
JAN												
11...	140	100	420	6.6	11	360	1100	8.3	.3	--	--	10
FEB												
27...	130	92	350	5.7	9.5	360	1100	8.2	.2	--	--	12
MAR												
29...	55	37	100	2.6	11	130	380	3.2	.1	.0	.00	8.8
APR												
10...	50	32	75	2.0	8.0	120	290	3.0	.1	.0	.00	7.6
MAY												
17...	120	93	310	5.2	8.8	380	930	7.6	.3	--	--	7.3
JUN												
14...	110	83	380	6.5	9.6	260	1100	8.2	.3	.1	.00	7.1
JUL												
11...	110	91	370	6.3	10	390	960	9.0	.3	--	--	8.5
AUG												
16...	120	70	270	4.8	9.8	390	850	5.8	.3	--	--	10
SEP												
19...	81	86	340	6.5	11	320	1000	9.3	.3	.1	.00	10

06336500 BEAVER CREEK AT WIBAUX, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, KJEL-DAHL, TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C) (00689)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
OCT 23...	1870	2.54	11.1	.01	.01	.38	.39	.01	6.5	--	680	30
NOV 16...	1870	2.54	19.2	.01	.01	.39	.40	.02	--	--	710	10
DEC 14...	2060	2.80	23.4	.11	.06	.40	.46	.02	6.2	.3	760	40
JAN 11...	1970	2.68	6.91	.25	.08	.35	.43	.02	--	--	740	30
FEB 27...	1920	2.61	19.2	.04	.06	.24	.30	.02	--	--	660	30
MAR 29...	674	.92	108	1.6	.09	.83	.92	.14	9.8	.8	240	110
APR 10...	539	.73	950	.04	.08	2.1	2.2	.46	8.4	--	160	190
MAY 17...	1710	2.33	106	.03	.02	.48	.50	.03	--	--	580	10
JUN 14...	1860	2.53	39.7	.01	.02	.78	.80	.02	9.0	.7	1100	10
JUL 11...	1810	2.46	10.3	.05	.01	.81	.82	.03	--	--	760	20
AUG 16...	1570	2.14	5.09	.01	.01	.52	.53	.04	--	--	680	10
SEP 19...	1730	2.35	2.10	.00	.00	.66	.66	.02	7.2	.3	760	0

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)
OCT 23...	1500	1	1	0	0	1	1	0	0	5	2	300
APR 10...	1700	3	1	0	0	1	1	20	0	29	3	12000
SEP 19...	1600	2	2	0	0	0	0	0	10	1	1	190

DATE	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
OCT 23...	0	0	210	160	.2	.0	3	2	0	0	10	10
APR 10...	16	0	700	90	--	.1	17	4	1	1	60	20
SEP 19...	0	0	190	140	.1	.1	3	2	0	0	10	10

06336500 BEAVER CREEK AT WIBAUX, MT--Continued

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPERATURE (DEG C) (00010)	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT						
23...	1500	8.0	2.2	53	.31	--
NOV						
16...	1030	.5	3.8	29	.30	--
DEC						
14...	1400	.0	4.2	73	.83	--
JAN						
11...	1100	.5	1.3	22	.08	--
FEB						
27...	1400	.0	3.7	30	.30	--
MAR						
29...	1100	.5	99	45	12	98
APR						
10...	1700	2.5	653	549	968	98
MAY						
17...	1700	15.0	23	60	3.7	--
JUN						
14...	1700	21.0	7.9	59	1.3	--
JUL						
11...	1100	21.5	2.1	34	.19	--
AUG						
16...	1000	17.5	1.2	127	.41	--
SEP						
19...	1600	19.0	.45	67	.11	--

06336510 UPPER HAY CREEK TRIBUTARY NEAR WIBAUX, MT

LOCATION.--Lat 46°59'31", long 104°06'12", in NW¼SW¼SE¼ sec.3, T.14 N., R.60 W., Wibaux County, Hydrologic Unit 10110204, on right bank, and 4 mi (6 km) west of Wibaux.

DRAINAGE AREA.--3.8 mi² (9.8 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1978 to September 1979.

GAGE.--Water-stage recorder.

REMARKS.--Water-discharge records poor.

EXTREMES FOR CURRENT PERIOD.--March to September 1978: Peak discharges above base of 5.0 ft³/s (0.14 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 19	--	*85	2.41	Unknown	
July 5	0430	14.5	0.41	6.66	2.030

No flow most of year.

Water year 1979: Maximum discharge, 10 ft³/s (0.28 m³/s) Apr. 9, gage height, unknown; no flow most of year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.50	.01	.00	.00	.00	.00
2	.00	.00	.00	.00	.00	.00	.30	.00	.00	.00	.00	.00
3	.00	.00	.00	.00	.00	.00	.60	.00	.00	.00	.00	.00
4	.00	.00	.00	.00	.00	.00	.30	.00	.00	.00	.00	.00
5	.00	.00	.00	.00	.00	.00	.60	.00	.00	.00	.00	.00
6	.00	.00	.00	.00	.00	.00	1.0	.00	.00	.00	.00	.00
7	.00	.00	.00	.00	.00	.00	1.5	.00	.00	.00	.00	.00
8	.00	.00	.00	.00	.00	.00	2.0	.00	.00	.00	.00	.00
9	.00	.00	.00	.00	.00	.00	8.0	.00	.00	.00	.00	.00
10	.00	.00	.00	.00	.00	.00	1.0	.00	.00	.00	.00	.00
11	.00	.00	.00	.00	.00	.00	.20	.00	.00	.00	.00	.00
12	.00	.00	.00	.00	.00	.00	.17	.00	.00	.00	.00	.00
13	.00	.00	.00	.00	.00	.00	.26	.00	.00	.00	.00	.00
14	.00	.00	.00	.00	.00	.00	.29	.00	.00	.00	.00	.00
15	.00	.00	.00	.00	.00	.00	.31	.00	.00	.00	.00	.00
16	.00	.00	.00	.00	.00	.00	.63	.00	.00	.00	.00	.00
17	.00	.00	.00	.00	.00	.00	.34	.00	.00	.00	.00	.00
18	.00	.00	.00	.00	.00	.00	.20	.00	.00	.00	.00	.00
19	.00	.00	.00	.00	.00	.00	.14	.00	.00	.00	.00	.00
20	.00	.00	.00	.00	.00	.00	.12	.00	.00	.00	.00	.00
21	.00	.00	.00	.00	.00	.00	.09	.00	.00	.00	.00	.00
22	.00	.00	.00	.00	.00	.00	.07	.00	.00	.00	.00	.00
23	.00	.00	.00	.00	.00	.00	.06	.00	.00	.00	.00	.00
24	.00	.00	.00	.00	.00	.00	.06	.00	.00	.00	.00	.00
25	.00	.00	.00	.00	.00	.00	.08	.00	.00	.00	.00	.00
26	.00	.00	.00	.00	.00	.00	.07	.00	.00	.00	.00	.00
27	.00	.00	.00	.00	.00	3.5	.06	.00	.00	.00	.00	.00
28	.00	.00	.00	.00	.00	3.0	.05	.00	.00	.00	.00	.00
29	.00	.00	.00	.00	---	3.5	.03	.00	.00	.00	.00	.00
30	.00	.00	.00	.00	---	3.0	.02	.00	.00	.00	.00	.00
31	.00	---	.00	.00	---	2.5	---	.00	---	.00	.00	---
TOTAL	.00	.00	.00	.00	.00	15.50	19.05	.01	.00	.00	.00	.00
MEAN	.000	.000	.000	.000	.000	.50	.64	.000	.000	.000	.000	.000
MAX	.00	.00	.00	.00	.00	3.5	8.0	.01	.00	.00	.00	.00
MIN	.00	.00	.00	.00	.00	.00	.02	.00	.00	.00	.00	.00
AC-FT	.00	.00	.00	.00	.00	31	38	.02	.00	.00	.00	.00

WTR YR 1979 TOTAL 34.56 MEAN .095 MAX 8.0 MIN .00 AC-FT 69

06336510 UPPER HAY CREEK TRIBUTARY NEAR WIBAUX, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--March 1978 to September 1979.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE (DEG C) (00010)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)
APR									
17...	1245	.32	640	8.3	8.5	250	140	62	28
25...	1325	.09	990	8.3	9.0	440	270	100	47

DATE	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM AD-SORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY (MG/L AS CACO3) (00410)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)
APR									
17...	17	.5	8.8	110	190	2.3	.1	9.4	380
25...	34	.7	11	170	360	2.7	.1	13	671

DATE	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N) (00625)	BORON, DISSOLVED (UG/L AS B) (01020)	IRON, DISSOLVED (UG/L AS FE) (01046)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MOLYBDENUM, DISSOLVED (UG/L AS MO) (01060)	STRONTIUM, DISSOLVED (UG/L AS SR) (01080)
APR								
17...	.52	.33	.61	150	70	70	<10	190
25...	.91	.16	.77	200	60	50	<10	410

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	TEMPERATURE (DEG C) (00010)
MAR				
27...	1545	3.8	375	.5
28...	1045	3.1	250	.5
29...	1605	3.7	215	.5
APR				
03...	1310	.60	260	.5
04...	1230	.30	225	.0
06...	1520	1.0	250	--
09...	1405	9.1	190	3.0
10...	1255	1.0	260	5.0
11...	1240	.17	340	2.5
14...	1030	.24	775	1.5
17...	1245	.32	640	8.5
18...	1445	.19	800	15.5
20...	1210	.11	750	9.0
25...	1325	.09	990	9.0

06336510 UPPER HAY CREEK TRIBUTARY NEAR WIBAUX, MT--Continued

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPERATURE (DEG C) (00010)	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)
MAR					
28...	1045	.5	3.1	30	.25
29...	1605	.5	3.7	146	1.5
APR					
03...	1310	.5	.60	36	.06
09...	1405	3.0	9.1	2580	63

06336515 LOWER HAY CREEK TRIBUTARY NEAR WIBAUX, MT

LOCATION.--Lat 47°02'26", long 104°08'04", in NW¼SW¼SW¼ sec.21, T.15 N., R.60 E., Wibaux County, Hydrologic Unit 10110204, on left bank, and 5.5 mi (8.8 km) northeast of Wibaux.

DRAINAGE AREA.--11.5 mi² (29.8 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1978 to September 1979.

GAGE.--Water-stage recorder.

REMARKS.--Water-discharge records fair.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 58 ft³/s (1.64 m³/s) Apr. 9, 1979, gage height, 2.04 ft (0.622 m); maximum gage height, 6.67 ft (2.033 m) Mar. 19, 1978 (backwater from ice); no flow for several months most years.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 10 ft³/s (0.28 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 17	1400	backwater from ice		*3.24	0.988	Apr. 1	--	25	0.71	backwater from ice	
Mar. 24	--	35	0.99	backwater from ice		Apr. 9	1545	*58	1.64	2.04	0.622

No flow for several months.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.03	.01	.00	.00	.00	.00	5.5	.89	.45	.07	.07	.01
2	.03	.01	.00	.00	.00	.00	4.0	.86	.43	.07	.06	.01
3	.03	.01	.00	.00	.00	.00	3.0	.75	.36	.07	.06	.01
4	.02	.01	.00	.00	.00	.00	3.0	.66	.34	.07	.06	.01
5	.02	.01	.00	.00	.00	.00	2.5	.66	.29	.08	.06	.01
6	.02	.01	.00	.00	.00	.00	3.0	.77	.34	.08	.05	.01
7	.02	.01	.00	.00	.00	.00	12	.90	.31	.08	.05	.01
8	.02	.01	.00	.00	.00	.00	24	.79	.27	.10	.05	.01
9	.01	.01	.00	.00	.00	.00	31	.66	.24	.15	.04	.01
10	.01	.01	.00	.00	.00	.00	14	.66	.22	.12	.04	.01
11	.01	.01	.00	.00	.00	.00	6.1	.66	.19	.20	.04	.01
12	.01	.01	.00	.00	.00	.00	3.8	.63	.16	.14	.04	.01
13	.01	.01	.00	.00	.00	.00	1.6	.57	.11	.14	.04	.01
14	.01	.01	.00	.00	.00	.00	3.3	.57	.08	.13	.04	.01
15	.01	.01	.00	.00	.00	.00	3.8	.56	.08	.12	.04	.01
16	.01	.01	.00	.00	.00	.00	5.6	.48	.08	.12	.03	.01
17	.01	.01	.00	.00	.00	3.0	6.4	.45	.07	.12	.02	.01
18	.01	.01	.00	.00	.00	2.0	4.5	.45	.07	.11	.02	.01
19	.01	.00	.00	.00	.00	1.5	2.7	.50	.07	.10	.02	.01
20	.01	.00	.00	.00	.00	1.0	2.1	.54	.07	.10	.02	.01
21	.01	.00	.00	.00	.00	1.5	1.6	.55	.07	.10	.02	.01
22	.01	.00	.00	.00	.00	1.5	1.3	.47	.08	.09	.01	.01
23	.01	.00	.00	.00	.00	4.0	1.2	.46	.07	.11	.01	.01
24	.01	.00	.00	.00	.00	18	1.5	.45	.07	.11	.01	.01
25	.01	.00	.00	.00	.00	25	1.6	.43	.07	.12	.01	.01
26	.01	.00	.00	.00	.00	8.0	1.4	.45	.07	.13	.01	.01
27	.01	.00	.00	.00	.00	5.0	1.3	.44	.07	.10	.01	.01
28	.01	.00	.00	.00	.00	4.0	1.1	.37	.07	.09	.01	.01
29	.01	.00	.00	.00	---	2.5	.96	.55	.07	.08	.01	.01
30	.01	.00	.00	.00	---	3.0	.90	.65	.07	.08	.01	.01
31	.01	---	.00	.00	---	3.5	---	.52	---	.08	.01	---
TOTAL	.42	.18	.00	.00	.00	83.50	154.76	18.35	4.94	3.26	.97	.30
MEAN	.014	.006	.000	.000	.000	2.69	5.16	.59	.16	.11	.031	.010
MAX	.03	.01	.00	.00	.00	25	31	.90	.45	.20	.07	.01
MIN	.01	.00	.00	.00	.00	.00	.90	.37	.07	.07	.01	.01
AC-FT	.8	.4	.00	.00	.00	166	307	36	9.8	6.5	1.9	.6

WTR YR 1979 TOTAL 266.68 MEAN .73 MAX 31 MIN .00 AC-FT 529

06336515 LOWER HAY CREEK TRIBUTARY NEAR WIBAUX, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water year 1978 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)
APR									
11...	1205	5.7	1300	8.3	.5	560	390	79	87
25...	1230	1.6	2850	8.1	4.0	1600	1200	230	240
JUN									
21...	1445	.07	2500	8.1	23.0	1300	970	170	210

DATE	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)
APR									
11...	76	1.4	9.3	170	560	6.3	.1	9.7	931
25...	200	2.2	10	330	1600	15	.1	6.2	2500
JUN									
21...	200	2.4	7.7	320	1500	18	.2	1.2	2300

DATE	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO) (01060)	STRON-TIUM, DIS-SOLVED (UG/L AS SR) (01080)
APR								
11...	1.27	14.4	.87	360	440	180	10	780
25...	3.40	10.8	.94	880	110	100	0	220
JUN								
21...	3.13	.43	1.6	680	60	40	0	1700

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	TEMPER-ATURE (DEG C) (00010)
MAR				
17...	1525	7.3	1000	.0
20...	1145	.85	1350	.5
21...	1535	1.2	1600	.5
22...	1510	1.6	1525	.5
23...	1115	6.6	1100	.5
27...	1415	4.6	900	.5
28...	1210	3.9	925	.5
29...	1145	2.9	1450	.0
APR				
03...	1110	3.1	1400	.0
06...	1205	3.2	1450	--
09...	1310	20	760	2.0
10...	1340	12	1020	3.5
11...	1205	5.7	1300	.5
14...	0925	1.9	2050	1.5

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	TEMPER-ATURE (DEG C) (00010)
APR				
17...	1120	6.6	2000	8.0
18...	1345	4.7	1950	15.0
20...	1105	2.1	1990	8.5
25...	1230	1.6	2850	4.0
MAY				
02...	1400	.81	2700	7.0
16...	1205	.48	2600	15.0
30...	1345	.61	2200	16.0
JUN				
21...	1445	.07	2500	23.0
JUL				
24...	1010	.10	2100	24.0
SEP				
11...	1255	.04	2050	19.0

06336515 LOWER HAY CREEK TRIBUTARY NEAR WIBAUX, MT--Continued

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPER-ATURE (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)
MAR					
21...	1535	.5	1.2	11	.04
22...	1510	.5	1.6	21	.09
28...	1210	.5	3.9	12	.13
29...	1145	.0	2.9	16	.13
APR					
03...	1110	.0	3.1	14	.12
09...	1310	2.0	20	94	5.1
11...	1205	.5	5.7	12	.19
14...	0925	1.5	1.9	10	.05
16...	1200	--	--	7	--
16...	1300	--	--	10	--
16...	1400	--	--	10	--
16...	1500	--	--	9	--
16...	1600	--	--	6	--
16...	1700	--	--	10	--
16...	1800	--	--	10	--
16...	1900	--	--	8	--
16...	2000	--	--	11	--
16...	2100	--	--	10	--
16...	2200	--	--	13	--
16...	2300	--	--	14	--
16...	2400	--	--	14	--
17...	0100	--	--	11	--
17...	0200	--	--	13	--
17...	0300	--	--	12	--
17...	0400	--	--	7	--
17...	0500	--	--	27	--
17...	0600	--	--	3	--
17...	0700	--	--	8	--
17...	0800	--	--	9	--

06336545 LITTLE BEAVER CREEK NEAR WIBAUX, MT

LOCATION.--Lat 47°03'44", long 104°05'30", in NW¼NW¼NW¼ sec.14, T.15 N., R.60 W., Wibaux County, Hydrologic Unit 10110204, on the right bank 100 ft (30.5 m) upstream from county highway bridge, 9.5 mi (15.3 km) northeast of Wibaux.

DRAINAGE AREA.--96.2 mi² (249.2 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1978 to September 1979.

GAGE.--Water-stage recorder.

REMARKS.--Water-discharge records poor. Flow regulated by Odlands Dam, capacity 600 acre-ft (740 hm³) to the top of the spillway; 9.1 mi (14.6 km) upstream.

EXTREMES FOR CURRENT PERIOD.--March to September 1978: Maximum discharge, 1,850 ft³/s (52.4 m³/s) Mar. 21, gage height, 10.14 ft (3.091 m), backwater from ice; no flow many days during winter months.

Water year 1979: Maximum daily discharge, 400 ft³/s (11.3 m³/s) Apr. 10, gage height unknown; minimum daily, 0.01 ft³/s (0.0003 m³/s) Oct. 1-4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.01	.14	.16	.14	.04	.02	64	9.0	.61	.12	.18	.17
2	.01	.14	.15	.14	.03	.02	62	11	.55	.10	.17	.18
3	.01	.12	.14	.14	.03	.02	60	9.7	.36	.10	.17	.18
4	.01	.14	.14	.12	.02	.02	55	7.3	.42	.08	.17	.15
5	.02	.14	.14	.12	.02	.02	50	7.0	.36	.08	.15	.14
6	.02	.14	.12	.12	.02	.05	45	7.5	.36	.06	.14	.13
7	.03	.14	.11	.10	.02	.05	100	7.3	.31	.04	.13	.15
8	.03	.14	.10	.10	.02	.10	250	6.7	.31	.08	.13	.15
9	.04	.20	.10	.10	.02	.10	350	6.0	.31	.10	.13	.15
10	.05	.36	.10	.08	.02	.10	400	5.1	.27	.12	.11	.17
11	.06	.34	.16	.08	.02	.10	137	4.1	.27	43	.10	.19
12	.06	.32	.20	.06	.02	.30	79	3.6	.36	75	.10	.18
13	.06	.30	.20	.06	.02	.50	47	3.3	.27	30	.11	.18
14	.06	.28	.20	.04	.02	.70	32	3.6	.20	11	.11	.17
15	.08	.26	.20	.04	.02	.85	38	3.0	.17	4.1	.13	.18
16	.08	.25	.20	.02	.02	1.0	94	3.0	.20	2.0	.13	.17
17	.08	.24	.20	.02	.02	1.2	154	2.1	.17	.99	.14	.15
18	.08	.23	.20	.02	.02	1.2	114	1.6	.14	.65	.15	.13
19	.10	.22	.20	.02	.02	1.5	67	1.4	.14	.41	.15	.13
20	.12	.21	.20	.02	.02	2.0	42	1.8	.17	.30	.14	.10
21	.10	.20	.20	.04	.02	3.5	28	1.7	.20	.26	.15	.10
22	.10	.19	.20	.14	.02	3.5	23	1.6	.42	.22	.15	.09
23	.10	.18	.20	.14	.02	6.2	19	.88	.36	.23	.14	.09
24	.12	.18	.20	.10	.02	30	16	.80	.31	.22	.14	.09
25	.12	.18	.20	.09	.02	128	16	.88	.27	.20	.13	.09
26	.12	.18	.18	.08	.02	140	16	.88	.23	.23	.14	.09
27	.12	.18	.18	.07	.02	120	16	.61	.14	.26	.14	.08
28	.12	.18	.18	.06	.02	100	13	.61	.17	.26	.18	.08
29	.14	.18	.16	.05	---	70	11	.73	.17	.23	.17	.07
30	.14	.18	.16	.05	---	68	9.7	.80	.14	.23	.17	.06
31	.14	---	.16	.04	---	66	---	.67	---	.22	.17	---
TOTAL	2.33	6.14	5.24	2.40	.60	745.05	2407.7	114.26	8.36	170.89	4.42	3.99
MEAN	.075	.20	.17	.077	.021	24.0	80.3	3.69	.28	5.51	.14	.13
MAX	.14	.36	.20	.14	.04	140	400	11	.61	75	.18	.19
MIN	.01	.12	.10	.02	.02	.02	9.7	.61	.14	.04	.10	.06
AC-FT	4.6	12	10	4.8	1.2	1480	4780	227	17	339	8.8	7.9

WTR YR 1979 TOTAL 3471.38 MEAN 9.51 MAX 400 MIN .01 AC-FT 6890

06336545 LITTLE BEAVER CREEK NEAR WIBAUX, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water year 1978 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE (DEG C) (00010)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)
NOV									
07...	1430	.14	1350	6.0	6.5	850	280	110	140
APR									
17...	1030	158	1375	8.2	4.5	450	290	65	70
25...	1130	15	1550	7.9	4.0	750	480	120	110
JUN									
21...	1300	.14	3250	8.3	20.5	920	460	120	150

DATE	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY (MG/L AS CACO3) (00410)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)
NOV									
07...	590	8.8	16	570	1500	15	.2	2.9	2720
APR									
17...	120	2.5	10	160	550	8.1	.2	8.9	930
25...	230	3.6	11	270	910	9.8	.2	7.6	1560
JUN									
21...	550	7.9	11	460	1500	16	.3	2.1	2630

DATE	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	NITROGEN,AMMONIA + ORGANIC DIS. (MG/L AS N) (00623)	BORON, DISSOLVED (UG/L AS B) (01020)	IRON, DISSOLVED (UG/L AS FE) (01046)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MOLYBDENUM, DISSOLVED (UG/L AS MO) (01060)	STRONTIUM, DISSOLVED (UG/L AS SR) (01080)
NOV								
07...	3.70	1.03	1.3	900	30	40	4	690
APR								
17...	1.26	397	2.3	310	20	200	<10	600
25...	2.12	63.6	1.2	550	420	290	0	110
JUN								
21...	3.58	.99	.02	1000	30	40	3	1700

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPERATURE (DEG C) (00010)	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)
MAR					
21...	1420	.5	3.2	12	.10
22...	1345	.5	2.7	19	.14
29...	1130	.0	64	60	10
APR					
03...	1005	.0	57	51	7.9
11...	1450	1.0	131	156	55

06336545 LITTLE BEAVER CREEK NEAR WIBAUX, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	TEMPERATURE (DEG C) (00010)
NOV				
07...	1430	.14	1350	6.5
DEC				
11...	1155	.16	2400	.0
JAN				
16...	1205	.02	3500	.0
MAR				
14...	1130	.70	1750	.0
17...	1350	1.1	1150	--
20...	1300	1.9	1400	.5
21...	1420	3.2	1525	.5
22...	1345	2.7	1590	.5
23...	1245	7.1	--	12.0
27...	1300	163	--	.5
28...	1400	122	1000	.5
29...	1130	64	1100	.0
APR				
03...	1005	57	1150	.0
06...	1110	38	1290	--
09...	1200	332	1300	4.0
11...	1450	131	640	1.0
17...	1030	158	1375	4.5
20...	1015	40	1390	4.5
25...	1130	15	1550	4.0
MAY				
02...	1330	12	1400	6.0
JUN				
21...	1300	.14	3250	20.5
JUL				
24...	0930	.22	2000	--
SEP				
11...	1345	.20	1900	18.5

06336600 BEAVER CREEK NEAR TROTTERS, ND

LOCATION.--Lat 47°09'47", long 103°59'32", in SW¼SW¼NE¼ sec.33, T.143 N., R.105 W., Golden Valley County, Hydrologic Unit 10110204, on left bank 100 ft (30 m) upstream from bridge on county road, 2.4 mi (3.9 km) west of Montana-North Dakota State line, 13 mi (21 km) southwest of Trotters, 17 mi (27 km) north of Beach, 20 mi (32 km) upstream from Elk Creek, and 27 mi (43 km) above mouth.

DRAINAGE AREA.--485 mi² (1,260 km²), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1977 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 2,370 ft (722 m), from topographic map.

REMARKS.--Water-discharge records good except those for periods from November to March, which are fair.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,720 ft³/s (77.0 m³/s) Mar. 29, 1978, gage height, 18.61 ft (5.672 m); maximum gage height, 19.27 ft (5.874 m) Mar. 22, 1978 (ice jam); minimum daily discharge, 0.04 ft³/s (0.001 m³/s) Oct. 3-7, 10-15, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 200 ft³/s (5.66 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Apr. 11	--	970	27.5	Ice jam		Apr. 19	0500	*1,410	39.9	13.74	4.188

Minimum daily discharge, 0.13 ft³/s (0.004 m³/s) Sept. 22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.1	5.5	5.0	3.5	4.5	5.0	250	87	24	7.6	8.6	1.1
2	1.2	5.5	5.0	3.5	4.5	5.0	230	79	23	7.4	7.0	1.0
3	1.4	5.5	5.0	3.5	4.5	5.0	220	75	22	6.9	6.0	.90
4	1.4	5.5	5.0	3.5	5.0	5.0	215	70	21	6.4	5.0	.71
5	1.6	5.5	5.0	3.5	5.5	5.2	210	65	19	5.9	4.6	.56
6	1.4	5.5	4.8	3.5	5.5	5.5	300	64	18	5.3	4.3	.44
7	1.4	5.5	4.5	3.5	5.2	5.5	400	64	17	5.1	3.9	.39
8	1.4	6.0	4.0	3.5	5.5	5.5	500	60	15	4.7	3.8	.39
9	1.1	6.5	4.0	3.5	5.5	5.5	610	58	17	4.5	3.4	.39
10	1.3	6.0	4.5	3.5	5.5	5.5	750	55	16	4.6	3.3	.42
11	1.1	5.5	5.0	3.5	5.4	6.0	880	52	16	9.3	3.3	.57
12	1.2	5.5	5.0	3.5	5.2	6.0	937	49	15	84	3.2	.50
13	1.7	5.5	5.5	3.5	5.2	7.0	621	47	14	61	3.0	.42
14	1.5	5.5	6.0	3.5	5.2	8.0	354	46	13	28	2.6	.41
15	1.6	5.4	6.5	3.5	5.0	9.0	264	44	13	19	2.4	.35
16	2.6	5.4	6.5	3.5	5.0	10	253	42	12	14	2.3	.31
17	2.2	5.4	6.5	3.8	5.0	18	527	40	12	11	2.2	.25
18	2.0	5.4	6.0	4.0	5.2	20	1110	37	11	9.0	2.0	.27
19	2.1	5.2	6.0	4.3	5.2	21	1220	37	11	7.4	2.0	.23
20	2.1	5.0	6.0	4.5	5.0	22	666	35	11	6.3	1.7	.20
21	2.2	5.0	6.0	4.8	5.0	23	378	34	11	5.6	1.6	.19
22	1.6	5.0	6.0	5.0	5.0	25	247	32	12	4.9	1.7	.13
23	1.5	5.2	6.0	5.0	5.0	40	186	31	12	4.4	1.6	.16
24	2.5	5.5	5.8	5.0	5.0	85	158	29	11	13	1.4	.17
25	3.5	5.5	5.5	5.0	5.2	190	138	29	10	33	1.2	.15
26	5.0	5.5	5.0	5.0	5.2	200	124	27	9.6	24	1.1	.14
27	6.0	5.5	4.5	4.8	5.2	180	116	26	8.9	23	1.2	.18
28	5.8	5.5	4.0	4.5	5.0	175	110	24	9.0	18	1.1	.18
29	5.5	5.2	3.5	4.5	---	170	101	26	8.3	16	1.1	.16
30	5.5	5.0	3.5	4.5	---	210	94	27	8.0	18	.89	.17
31	5.5	---	3.5	4.5	---	240	---	25	---	12	.84	---
TOTAL	76.0	163.7	159.1	125.2	143.2	1717.7	12169	1416	419.8	479.3	88.33	11.44
MEAN	2.45	5.46	5.13	4.04	5.11	55.4	406	45.7	14.0	15.5	2.85	.38
MAX	6.0	6.5	6.5	5.0	5.5	240	1220	87	24	84	8.6	1.1
MIN	1.1	5.0	3.5	3.5	4.5	5.0	94	24	8.0	4.4	.84	.13
AC-FT	151	325	316	248	284	3410	24140	2810	833	951	175	23

CAL YR 1978 TOTAL 29382.80 MEAN 80.5 MAX 2500 MIN .33 AC-FT 58280
WTR YR 1979 TOTAL 16968.77 MEAN 46.5 MAX 1220 MIN .13 AC-FT 33660

06336600 BEAVER CREEK NEAR TROTTERS, ND--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water year 1978 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)
OCT										
02...	1400	1.6	2300	8.2	8.0	12.0	8.7	89	20	110
NOV										
16...	1230	5.4	2490	8.0	2.0	.0	13.0	97	--	--
DEC										
15...	1035	6.5	2660	8.1	-3.0	.0	11.8	89	K3	27
JAN										
12...	1000	3.5	2840	7.9	-20.0	.0	11.1	83	K2	K3
FEB										
06...	1500	5.6	2630	8.0	-18.0	.0	11.6	87	K2	K21
APR										
12...	1420	965	695	7.8	1.0	.5	11.9	91	70	220000
MAY										
10...	0900	56	2150	8.5	1.5	7.0	9.5	98	K8	46
18...	0805	38	2280	8.5	7.0	12.5	9.3	95	34	430
JUN										
15...	1045	13	2400	8.3	19.0	19.0	7.9	92	52	46
JUL										
26...	1135	22	2370	8.4	18.5	22.0	--	--	200	370
AUG										
06...	1335	4.4	1830	8.4	31.5	24.5	9.0	115	59	68
SEP										
12...	1030	.54	2490	8.2	10.0	13.0	8.4	86	K11	220

DATE	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)
OCT										
02...	560	160	97	78	350	6.4	11	489	0	400
NOV										
16...	660	230	110	94	360	6.1	11	520	0	430
DEC										
15...	780	300	130	110	400	6.2	12	586	0	480
JAN										
12...	830	280	150	110	460	7.0	12	671	0	550
FEB										
06...	810	300	160	100	420	6.4	12	625	0	510
APR										
12...	240	63	52	26	64	1.8	7.3	188	0	150
MAY										
10...	670	330	120	91	270	4.5	10	412	4	350
18...	720	350	130	95	300	4.9	11	437	6	360
JUN										
15...	690	310	110	100	360	6.0	11	459	0	380
JUL										
26...	680	310	110	99	340	5.7	12	438	6	370
AUG										
06...	480	170	83	66	260	5.2	11	371	5	310
SEP										
12...	0	0	110	91	370	6.3	11	520	0	430

06336600 BEAVER CREEK NEAR TROTTERS, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)
OCT										
02...	[illegible]	900	8.7	.2	6.2	1730	1690	2.35	7.07	.02
NOV										
16...	8.3	1000	4.9	.2	9.1	1890	1850	2.57	27.8	.03
DEC										
15...	7.4	1100	12	.2	9.9	2080	2060	2.83	30.5	.15
JAN										
12...	14	1200	14	.2	12	2270	2290	3.09	21.5	.31
FEB										
06...	10	1100	10	.2	12	2170	2120	2.95	32.8	.55
APR										
12...	4.8	240	2.6	.1	7.0	462	492	.63	1200	.36
MAY										
10...	2.1	850	8.0	.2	6.2	1630	1560	2.22	286	.00
18...	2.5	910	7.8	.2	6.8	1760	1680	2.39	161	.02
JUN										
15...	3.7	1000	8.6	.2	5.4	1840	1820	2.50	84.6	.02
JUL										
26...	2.9	870	9.2	.3	6.3	1790	1470	2.43	110	.01
AUG										
06...	2.4	890	6.6	.3	6.0	1290	1310	1.75	15.3	.01
SEP										
12...	5.3	1100	7.3	.3	7.7	1870	1950	2.54	2.73	.02

DATE	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C) (00689)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
OCT									
02...	.01	.50	.51	.030	.000	17	.4	670	20
NOV									
16...	.02	.38	.40	.020	.010	5.9	.5	610	20
DEC									
15...	.08	.29	.37	.010	.010	5.1	.3	650	140
JAN									
12...	.27	.83	1.1	.020	.010	9.4	.3	680	0
FEB									
06...	.11	.29	.40	.010	.000	6.5	.4	680	20
APR									
12...	.12	2.2	2.3	.430	.030	6.9	8.1	190	140
MAY									
10...	.01	.60	.61	.040	.010	13	.9	530	10
18...	.06	.53	.59	.030	.010	9.3	.7	590	10
JUN									
15...	.04	.48	.52	.030	.000	13	.7	740	10
JUL									
26...	.02	.64	.66	.070	.080	7.8	1.1	740	10
AUG									
06...	.02	.64	.66	.040	.020	8.0	1.0	680	<10
SEP									
12...	.03	.72	.75	.020	.010	14	.4	760	0

DATE	TIME	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)
APR										
12...	1420	50	5	1	400	400	0	0	20	20
JUL										
26...	1135	30	--	1	--	0	--	0	--	10
AUG										
06...	1335	0	3	2	0	70	0	<1	10	0

06336600 BEAVER CREEK NEAR TROTTERS, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO) (01037)	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) •(01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	LITHIUM TOTAL RECOV-ERABLE (UG/L AS LI) (01132)	LITHIUM DIS-SOLVED (UG/L AS LI) (01130)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)
APR										
12...	20	0	50	11	30	5	820	50	.2	.1
JUL										
26...	--	0	--	2	--	60	--	20	--	.0
AUG										
06...	0	<3	8	14	50	60	120	10	.2	.1

DATE	MOLYB-DENUM, TOTAL RECOV-ERABLE (UG/L AS MO) (01062)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO) (01060)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	VANA-DIUM, DIS-SOLVED (UG/L AS V) (01085)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
APR									
12...	3	0	27	0	1	0	1.4	110	10
JUL									
26...	--	2	--	3	--	0	<1.0	--	30
AUG									
06...	0	<10	6	3	0	3	<1.0	20	<3

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPER-ATURE (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70340)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)	SED. SUSP. FALL DIAM. % FINER THAN .125 MM (70343)	SED. SUSP. FALL DIAM. % FINER THAN .250 MM (70344)
OCT										
02...	1400	12.0	1.6	58	.25	--	--	--	--	--
NOV										
16...	1230	.0	5.4	57	.84	--	--	--	--	--
DEC										
15...	1135	--	6.5	52	.91	--	--	--	--	--
JAN										
12...	1000	.0	3.5	80	.76	--	--	--	--	--
FEB										
06...	1500	.0	5.0	26	.35	--	--	--	--	--
APR										
10...	1225	1.5	783	1330	2810	--	--	--	--	--
12...	1420	.5	965	991	2580	52	75	94	98	100
16...	1015	9.5	256	300	207	--	--	--	--	--
MAY										
10...	0900	7.0	56	28	4.2	--	--	--	--	--
18...	0805	12.5	38	75	7.7	--	--	--	--	--
JUN										
15...	1045	19.0	13	95	3.3	--	--	--	--	--
JUL										
26...	1135	22.0	22	155	9.2	--	--	--	--	--
AUG										
06...	1335	26.5	4.4	90	1.1	--	--	--	--	--
SEP										
12...	1030	13.0	.54	55	.08	--	--	--	--	--

06336600 BEAVER CREEK NEAR TROTTERS, ND--Continued

PARTICLE-SIZE DISTRIBUTION OF SURFACE BED MATERIAL, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	BED MAT. FALL DIAM. % FINER THAN .062 MM (80158)	BED MAT. FALL DIAM. % FINER THAN .125 MM (80159)	BED MAT. FALL DIAM. % FINER THAN .250 MM (80160)	BED MAT. FALL DIAM. % FINER THAN .500 MM (80161)	BED MAT. FALL DIAM. % FINER THAN 1.00 MM (80162)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM (80173)
APR											
12...	1420	8	12	19	21	22	27	49	75	91	100

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

PERIPHYTON

DATE	TIME	LENGTH OF EXPO-SURE (DAYS) (00022)	PERI-PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M (00573)	PERI-PHYTON BIOMASS ASH WEIGHT G/SQ M (00572)	CHLOR-A PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2) (70957)	CHLOR-B PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2) (70958)	BIOMASS CHLORO-PHYLL RATIO PERI-PHYTON (UNITS) (70950)
JUL							
26...	1135	41	19.1	16.7	1.62	.020	1481
AUG							
06...	1335	11	.870	.710	.120	.000	1333
SEP							
12...	1030	37	2.05	1.65	.720	.000	556

06336600 BEAVER CREEK NEAR TROTTERS, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

PHYTOPLANKTON

DATE TIME	OCT 2,78 1400	NOV 16,78 1230	DEC 15,78 1035	JAN 12,79 1000	FEB 6,79 1500	APR 12,79 1420
TOTAL CELLS/ML	1800	650	280	240	91	290
DIVERSITY: DIVISION	1.8	1.6	1.6	1.3	0.0	1.0
.CLASS	1.8	1.8	1.6	1.3	0.0	1.0
..ORDER	2.5	2.0	1.7	1.5	0.0	1.0
...FAMILY	2.6	2.3	2.4	2.9	0.3	1.8
....GENUS	2.9	0.0	2.4	2.9	0.3	2.5

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)												
.CHLOROPHYCEAE												
..CHLOROCOCCALES												
...OOCYSTACEAE												
....ANKISTRODESMUS	700#	39	200#	31	120#	44	23	10	--	-	--	-
....DICTYOSPHAERIUM	43	2	--	-	--	-	--	-	--	-	--	-
...SCENEDESMACEAE												
....ACTINASTRUM	--	-	--	-	--	-	--	-	--	-	58#	20
....CRUCIGENIA	86	5	--	-	--	-	--	-	--	-	--	-
....SCENEDESMUS	--	-	--	-	15	6	15	6	--	-	120#	40
..VOLVOCALES												
...CHLAMYDOMONADACEAE	--	-	43	7	--	-	--	-	--	-	--	-
....CHLAMYDOMONAS	32	2	--	-	8	3	--	-	--	-	--	-
CHRYSOPHYTA												
.BACILLARIOPHYCEAE												
..CENTRALES												
...COSCINODISCACEAE												
....CYCLOTELLA	54	3	--	-	--	-	8	3	--	-	--	-
....STEPHANODISCUS	22	1	--	-	--	-	--	-	--	-	--	-
..PENNALES												
...ACHNANTHACEAE												
....ACHNANTHES	--	-	--	-	--	-	8	3	--	-	--	-
....COCCONEIS	--	-	--	-	--	-	--	-	--	-	14	5
...CYMBELLACEAE												
....AMPHORA	--	-	14	2	8	3	--	-	--	-	--	-
....CYMBELLA	--	-	--	-	--	-	15	6	--	-	--	-
...FRAGILARIACEAE												
....SYNEDRA	22	1	--	-	8	3	8	3	--	-	--	-
...GOMPHONEMATACEAE												
....GOMPHONEMA	--	-	--	-	--	-	--	-	--	-	14	5
...NAVICULACEAE												
....DIPLONEIS	--	-	14	2	--	-	--	-	--	-	--	-
....GYROSIGMA	--	-	--	-	--	-	--	-	--	-	14	5
....NAVICULA	22	1	14	2	15	6	69#	29	5	6	14	5
...NITZSCHIACEAE												
....NITZSCHIA	150	8	58	9	46#	17	54#	23	86#	94	43	15
...SURIRELLACEAE												
....CYMATOPLEURA	--	-	--	-	--	-	--	-	--	-	14	5
CYANOPHYTA (BLUE-GREEN ALGAE)												
.CYANOPHYCEAE												
..CHROOCOCCALES												
...CHROOCOCCACEAE												
....ANACYSTIS	130	7	58	9	--	-	--	-	--	-	--	-
....COCCOCHLORIS	54	3	--	-	--	-	--	-	--	-	--	-
..HORMOGONALES												
...OSCILLATORIACEAE												
....OSCILLATORIA	190	11	--	-	--	-	8	3	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)												
.EUGLENOPHYCEAE												
..EUGLENALES												
...EUGLENACEAE												
....TRACHELOMONAS	280#	16	250#	38	46#	17	31	13	--	-	--	-
PYRRHOPHYTA (FIRE ALGAE)												
.DINOPHYCEAE												
..GYMNODINIALES												
...GYMNODINIACEAE												
....GYMNODINIUM	--	-	--	-	8	3	--	-	--	-	--	-

06336600 BEAVER CREEK NEAR TROTTERS, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

PHYTOPLANKTON

DATE	MAY 10,79	MAY 16,79	JUN 15,79	JUL 26,79	AUG 6,79	SEP 12,79
TIME	0900	0805	1045	1135	1335	1030
TOTAL CELLS/ML	6400	1400	1300	49000	7400	8700
DIVERSITY: DIVISION	1.1	1.5	0.6	0.9	1.2	0.4
.CLASS	1.1	1.5	0.6	0.9	1.2	0.4
..ORDER	1.3	1.7	0.8	1.6	1.9	0.4
...FAMILY	1.4	2.3	1.6	1.6	2.2	0.5
....GENUS	1.7	2.7	2.4	1.8	2.4	0.8

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)												
.CHLOROPHYCEAE												
..CHLOROCOCCALES												
...CHARACIACEAE												
....SCHROEDERIA	--	-	--	-	--	-	*	0	--	-	--	-
...CHLOROCOCCACEAE												
....CHLOROCOCCUM	--	-	--	-	--	-	--	-	--	-	*	0
...OOCYSTACEAE												
....ANKISTRODESMUS	390	6	260#	19	180	14	5200	11	520	7	65	1
....CHLORELLA	--	-	--	-	--	-	--	-	--	-	58	1
....CHODATELLA	--	-	--	-	--	-	330	1	--	-	--	-
....DICTYOSPHAERIUM	--	-	--	-	520#	39	1800	4	310	4	--	-
....KIRCHNERIELLA	56	1	--	-	--	-	--	-	--	-	--	-
....OOCYSTIS	--	-	--	-	--	-	--	-	52	1	--	-
....SELENASTRUM	1100#	16	240#	16	--	-	--	-	--	-	--	-
....TETRAEDRON	--	-	--	-	13	1	--	-	--	-	--	-
...SCENEDESMACEAE												
....ACTINASTRUM	--	-	--	-	260#	20	--	-	--	-	--	-
....CRUCIGENIA	--	-	--	-	150	12	--	-	--	-	*	0
....SCENEDESMUS	110	2	310#	22	--	-	*	0	1300#	18	180	2
..VOLVOCALES												
...CHLAMYDOMONADACEAE												
....CHLAMYDOMONAS	170	3	64	5	39	3	*	0	52	1	--	-
CHRYSOPHYTA												
.BACILLARIOPHYCEAE												
..CENTRALES												
...COSCINODISCACEAE												
....CYCLOTELLA	4200#	66	64	5	120	9	*	0	--	-	87	1
..PENNALES												
...FRAGILARIACEAE												
....SYNEDRA	--	-	--	-	26	2	--	-	--	-	--	-
...NAVICULACEAE												
....GYROSIGMA	--	-	--	-	--	-	--	-	52	1	--	-
....NAVICULA	--	-	--	-	--	-	*	0	52	1	--	-
...NITZSCHIACEAE												
....NITZSCHIA	110	2	13	1	--	-	490	1	210	3	--	-
CRYPTOPHYTA (CRYPTOMONADS)												
.CRYPTOPHYCEAE												
..CRYPTOMONADALES												
...CRYPTOMONADACEAE												
....CRYPTOMONAS	--	-	--	-	--	-	*	0	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)												
.CYANOPHYCEAE												
..CHROOCOCCALES												
...CHROOCOCCACEAE												
....ANACYSTIS	--	-	260#	19	--	-	10000#	21	2600#	36	--	-
..HORMOGONALES												
...OSCILLATORIACEAE												
....OSCILLATORIA	--	-	--	-	--	-	29000#	60	2100#	28	7800#	89
....SCHIZOTHRIX	--	-	--	-	--	-	--	-	--	-	410	5
EUGLENOPHYTA (EUGLENOIDS)												
.EUGLENOPHYCEAE												
..EUGLENALES												
...EUGLENACEAE												
....EUGLENA	--	-	13	1	--	-	530	1	100	1	*	0
....EUTREPTIA	--	-	--	-	--	-	--	-	--	-	*	0
....TRACHELOMONAS	220	4	150	11	13	1	*	0	--	-	*	0
PYRRHOPHYTA (FIRE ALGAE)												
.DINOPHYCEAE												
..GYMNODINIALES												
...GYMNODINIACEAE												
....GYMNODINIUM	--	-	--	-	--	-	--	-	--	-	*	0
..PERIDINIALES												
...GLENODINIACEAE												
....GLENODINIUM	--	-	--	-	--	-	*	0	--	-	*	0

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

KOOTENAI RIVER BASIN

12300110 LAKE KOOCANUSA AT INTERNATIONAL BOUNDARY

LOCATION.--Lat 48°59'44", long 115°10'43", in NE¼SW¼SE¼ sec.1, T.37 N., R.28 W., Lincoln County, Hydrologic Unit 17010101, 0.3 mi (0.5 km) south of international boundary, in middle of old channel 1.9 mi (3.1 km) upstream from Young Creek, and 6.4 mi (10.3 km) north of Rexford.

PERIOD OF RECORD.--Water years 1972 to current year.

REMARKS.--Vertical profiles for temperature, specific conductance, dissolved oxygen, pH, transmissibility, and natural light penetration are available in files in Helena district office.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	SAMPLING DEPTH (FT) (00003)	ELEVATION (FT. NGVD) (72020)	WEATHER (WMO CODE NUMBER) (00041)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	ALKALINITY (MG/L AS CACO3) (00410)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)
OCT												
11...	1115	1.5	2452.00	0	210	8.4	14.5	14.3	9.1	96	3.1	.01
11...	1145	10	2452.00	0	210	8.4	14.5	14.3	9.1	100	3.1	.01
11...	1215	40	2452.00	0	220	8.4	14.5	14.3	8.9	93	--	--
11...	1245	124	2452.00	0	240	8.3	14.5	11.6	8.4	100	4.0	.07
24...	1115	1.5	2450.00	--	210	8.5	9.5	12.0	9.5	97	3.1	.01
24...	1145	10	2450.00	--	210	8.5	9.5	12.0	9.5	97	3.0	.02
24...	1215	40	2450.00	--	210	8.5	9.5	12.0	9.5	96	--	--
24...	1245	121	2450.00	--	225	8.3	9.5	10.3	9.2	100	3.3	.02
JUN												
28...	1230	1.5	2437.00	1	236	8.6	24.0	19.0	9.1	84	4.2	.09
28...	1245	10	2437.00	1	236	8.5	24.0	17.5	9.4	86	4.3	.09
28...	1300	40	2437.00	1	222	8.3	--	14.2	9.1	--	--	--
28...	1315	122	2437.00	1	282	8.1	24.0	7.3	8.0	96	4.4	.16
JUL												
11...	1230	1.5	2445.00	3	236	8.5	17.5	18.6	8.6	93	4.1	.09
11...	1300	10	2445.00	3	236	8.5	17.5	18.6	8.7	95	4.0	.09
11...	1330	45	2445.00	3	224	8.3	17.5	14.2	8.8	89	--	--
11...	1400	118	2445.00	3	266	7.9	17.5	8.0	8.1	98	4.3	.16
25...	1130	1.5	2450.00	3	238	8.5	18.5	19.5	8.8	99	3.6	.02
25...	1200	10	2450.00	3	238	8.4	18.5	19.5	8.8	100	3.6	.02
25...	1230	45	2450.00	3	233	8.2	18.5	15.7	8.5	96	--	--
25...	1300	115	2450.00	3	276	7.9	18.5	7.6	7.8	107	4.7	.16
AUG												
08...	1200	1.5	2451.00	0	236	8.5	--	20.7	9.1	93	3.4	.01
08...	1230	10	2451.00	0	236	8.5	--	20.1	9.1	92	3.4	.01
08...	1300	45	2451.00	0	249	8.1	--	17.5	8.1	94	--	--
08...	1330	122	2451.00	0	279	7.8	--	7.5	7.5	101	4.4	.15
22...	1200	1.5	2451.00	1	220	8.5	19.0	20.5	8.7	93	--	.01
22...	1230	10	2451.00	1	220	8.5	19.0	20.3	8.7	93	2.8	.01
22...	1300	60	2451.00	1	213	8.0	19.0	14.2	7.5	95	--	--
22...	1330	122	2451.00	1	247	7.7	19.0	8.5	7.3	102	2.8	.17
SEP												
05...	1000	1.5	2451.00	1	227	8.5	17.5	18.9	8.2	95	3.0	.02
05...	1030	10	2451.00	1	228	8.5	17.5	18.9	8.2	94	3.0	.01
05...	1100	65	2451.00	1	240	7.9	17.5	16.1	6.6	102	--	--
05...	1130	123	2451.00	1	258	7.8	17.5	7.9	6.7	102	4.7	.17
19...	1130	1.5	2449.00	0	232	8.5	21.5	18.6	8.8	96	3.2	.08
19...	1200	10	2449.00	0	232	8.5	21.5	18.3	8.8	100	3.3	.03
19...	1230	60	2449.00	0	261	7.9	--	15.7	7.2	111	--	--
19...	1300	125	2449.00	0	256	7.7	21.5	8.2	6.5	110	5.3	.18

12300110 LAKE KOOCANUSA AT INTERNATIONAL BOUNDARY--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) (00631)	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITROGEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITROGEN, KJELDAHL, TOTAL (MG/L AS N) (00625)	NITROGEN, TOTAL (MG/L AS N) (00600)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)	PHOSPHORUS, DISSOLVED (MG/L AS P) (00666)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P) (00671)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CHLOR-A PHYTOPLANKTON CHROMO FLUOROM (UG/L) (70953)	CHLOR-B PHYTOPLANKTON CHROMO FLUOROM (UG/L) (70954)
OCT											
11...	.01	.00	--	--	--	.008	.000	.000	1.3	1.24	.023
11...	.01	.00	--	--	--	.002	.000	.000	1.8	1.71	.045
11...	--	--	--	--	--	--	--	--	--	1.42	.023
11...	.08	.01	--	--	--	.006	.002	.002	1.5	--	--
24...	--	.01	--	--	--	.000	.002	.000	1.2	.785	.042
24...	--	.01	--	--	--	.004	.000	.000	1.3	.532	.042
24...	--	--	--	--	--	--	--	--	--	.888	.032
24...	--	.01	--	--	--	.000	.005	.002	1.4	--	--
JUN											
28...	.04	.01	.07	.08	.17	.005	.004	.002	2.5	1.99	.000
28...	.03	.01	.11	.12	.21	.010	.006	.002	2.9	.085	.000
28...	--	--	--	--	--	--	--	--	--	.100	.000
28...	.09	.01	.12	.13	.29	.010	--	--	3.8	--	--
JUL											
11...	--	.01	.08	.09	.18	.006	.004	.000	3.0	.396	.027
11...	--	.02	.13	.15	.24	.004	.002	.002	1.9	.112	.009
11...	--	--	--	--	--	--	--	--	--	.112	.023
11...	--	.01	.04	.05	.21	.010	.008	.001	1.4	--	--
25...	--	.02	.05	.07	.09	.000	.000	.000	2.5	.923	.037
25...	--	.01	.06	.07	.09	.000	.000	.000	2.5	1.52	.062
25...	--	--	--	--	--	--	--	--	--	.380	.062
25...	--	.00	.05	.05	.21	.005	.005	.000	4.8	--	--
AUG											
08...	--	.00	.04	.04	.05	.006	.003	.001	2.5	.389	.021
08...	--	.01	.04	.05	.06	.003	.000	.001	1.9	.389	.042
08...	--	--	--	--	--	--	--	--	--	.297	<.050
08...	--	.01	.00	.00	.15	.008	.001	.001	3.2	--	--
22...	--	.00	.15	.15	.16	.005	.000	.000	1.7	.102	.024
22...	--	.00	.10	.10	.11	.011	.002	.000	2.1	.161	.035
22...	--	--	--	--	--	--	--	--	--	.119	.012
22...	--	.00	.30	.30	.47	.012	.006	.003	5.8	--	--
SEP											
05...	--	.00	.26	.26	.28	.001	.001	.000	5.3	.241	.000
05...	--	.01	.21	.22	.23	.004	.001	.000	3.5	.668	.053
05...	--	--	--	--	--	--	--	--	--	.196	.018
05...	--	.00	.20	.20	.37	.007	.006	.004	4.8	--	--
19...	--	.01	.21	.22	.30	.002	.002	.000	1.4	.049	--
19...	--	.00	.25	.25	.28	.001	.000	.000	1.7	.146	--
19...	--	--	--	--	--	--	--	--	--	.083	--
19...	--	.13	.09	.22	.40	.009	.006	.005	1.5	--	--

DATE	TIME	SAMPLING DEPTH (FT) (00003)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	SULFATE DISSOLVED (MG/L AS SO4) (00945)
OCT										
11...	1115	1.5	120	--	32	8.5	2.2	.1	.4	18
11...	1145	10	110	--	32	8.4	2.2	.1	.4	16
11...	1245	124	120	--	35	9.0	2.7	.1	.5	20
JUN										
28...	1230	1.5	110	25	30	8.2	2.4	.1	.5	18
28...	1245	10	110	22	30	8.1	2.4	.1	.5	18
28...	1315	122	130	29	35	9.5	3.2	.1	.5	21

12300110 LAKE KOOCANUSA AT INTERNATIONAL BOUNDARY--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	ALUMINUM, TOTAL RECOVERABLE (UG/L AS AL) (01105)	ALUMINUM, DISSOLVED (UG/L AS AL) (01106)	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DISSOLVED (UG/L AS AS) (01000)	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)
OCT									
11...	2.2	.1	--	--	40	10	0	1	40
11...	2.2	.1	--	--	40	0	0	0	50
11...	2.7	.1	--	--	80	0	0	0	220
JUN									
28...	2.7	.1	117	.16	90	0	1	0	50
28...	2.3	.1	118	.16	80	20	0	0	40
28...	4.0	.1	137	.19	160	0	0	0	160

DATE	IRON, DISSOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOVERABLE (UG/L AS PB) (01051)	LEAD, DISSOLVED (UG/L AS PB) (01049)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MOLYBDENUM, TOTAL RECOVERABLE (UG/L AS MO) (01062)	MOLYBDENUM, DISSOLVED (UG/L AS MO) (01060)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)	ZINC, DISSOLVED (UG/L AS ZN) (01090)
OCT									
11...	20	3	2	0	0	3	0	10	0
11...	20	6	3	0	0	3	0	0	10
11...	30	3	3	10	0	3	0	10	10
JUN									
28...	20	38	0	0	0	0	0	90	10
28...	30	3	1	0	0	0	0	20	10
28...	10	8	9	10	0	0	0	30	10

12300110 LAKE KOOCANUSA AT INTERNATIONAL BOUNDARY--Continued

SELECTED VERTICAL PROFILES

JUNE 28

DEPTH (FT)	TEMPER-ATURE (DEG C)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	DIS-SOLVED OXYGEN (MG/L)	PH (UNITS)	TRANS-MISS-IBILITY (PER-CENT)
0	20.3	238	9.0	8.6	
1	19.0	238	9.1	8.6	7.3
3	18.8	234	9.3	8.5	11
5	17.9	236	9.3	8.5	14
10	17.5	236	9.4	8.5	9.2
15	17.1	237	9.5	8.5	9.2
20	16.1	236	9.4	8.4	17
25	15.4	232	9.3	8.4	17
30	14.8	227	9.0	8.4	19
35	14.4	223	9.0	8.3	15
40	14.2	222	9.1	8.3	9.6
45	14.1	219	9.2	8.3	9.2
55	13.4	218	9.4	8.4	3.8
65	12.8	218	9.4	8.4	0.9
75	12.6	220	9.4	8.4	0.5
85	12.4	225	9.4	8.3	0.5
90	11.4	228	9.4	8.2	0.5
95	9.8	237	8.9	8.2	0.5
100	8.3	266	8.5	8.1	0.6
110	7.6	275	8.4	8.1	0.6
122	7.3	282	8.0	8.1	0.1

AUG. 22

DEPTH (FT)	TEMPER-ATURE (DEG C)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	DIS-SOLVED OXYGEN (MG/L)	PH (UNITS)	TRANS-MISS-IBILITY (PER-CENT)
0	20.6	219	8.7	8.5	
1	20.5	220	8.7	8.5	25
3	20.4	220	8.7	8.5	25
5	20.4	220	8.6	8.5	24
10	20.3	220	8.7	8.5	24
15	20.3	220	8.7	8.5	23
20	20.3	220	8.7	8.5	23
25	20.1	220	8.6	8.4	23
30	19.8	223	8.4	8.4	21
35	19.3	228	8.2	8.3	21
40	18.6	235	7.8	8.2	20
45	17.8	232	7.4	8.1	24
50	16.7	228	7.1	8.0	24
55	15.4	224	7.0	7.9	24
60	14.2	213	7.5	8.0	25
65	13.7	212	7.9	8.0	27
70	13.1	212	8.0	8.0	27
75	14.7	212	8.2	8.0	24
80	11.8	216	8.2	7.9	25
85	11.0	216	8.2	7.9	27
90	10.8	218	8.3	7.9	27
100	10.0	225	8.2	7.8	23
110	9.2	235	8.0	7.7	22
122	8.5	247	7.3	7.7	16
132	8.1	257	6.7	7.7	14

PRIMARY PRODUCTIVITY IN THE EUPHOTIC ZONE

DATE	PRIMARY PRODUCTIVITY (MG C/M^2/DAY)
OCT.	
11. . .	130
24. . .	110
JUNE	
28. . .	130
JULY	
11. . .	83
25. . .	80
AUG	
8. . .	160
22. . .	200
SEPT	
5. . .	190
19. . .	150

(carbon-14, light and dark bottle method)

12301300 TOBACCO RIVER NEAR EUREKA, MT

LOCATION.--Lat 48°53'37", long 115°05'13", in NW¼SE¼SE¼ sec.9, T.36 N., R.27 W., Lincoln County, Hydrologic Unit 17010101, on right bank 0.2 mi (0.3 km) upstream from Indian Creek, 1.8 mi (2.9 km) northwest of Eureka, and 2.8 mi (4.5 km) upstream from Lake Koocanusa flow line.

DRAINAGE AREA.--440 mi² (1,140 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1958 to current year.

GAGE.--Water-stage recorder. Datum of gage is 2,518.85 ft (767.745 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good except those for winter period, which are poor. Diversions for irrigation of about 4,500 acres (18 km²) above station.

AVERAGE DISCHARGE.--21 years, 273 ft³/s (7.731 m³/s), 8.42 in/yr (214 mm/yr), 197,800 acre-ft/yr (244 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,470 ft³/s (70.0 m³/s) June 18, 1974, gage height, 6.86 ft (2.091 m); maximum gage height, 7.12 ft (2.170 m) May 27, 1961; minimum daily discharge, 20 ft³/s (0.57 m³/s) Jan. 11, 1963.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of about May 22, 1948, reached a discharge of 2,810 ft³/s (79.6 m³/s), from slope-area measurement of peak flow at site 1.5 mi (2.4 km) downstream.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,310 ft³/s (37.1 m³/s) May 6, gage height, 5.02 ft (1.530 m); minimum, 26 ft³/s (0.74 m³/s) Aug. 7, gage height, 1.83 ft (0.558 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	129	103	96	65	70	88	114	668	531	252	74	77
2	124	104	93	76	71	86	112	663	536	258	72	75
3	121	104	92	74	72	82	110	619	624	239	67	72
4	121	140	91	72	73	70	110	638	713	225	67	73
5	119	155	82	70	74	86	112	891	718	216	65	92
6	117	140	80	70	72	112	128	1140	775	207	57	90
7	116	130	76	70	70	135	160	1180	663	198	56	88
8	114	126	80	74	72	128	173	931	572	187	57	84
9	114	127	86	80	74	114	181	754	509	176	56	85
10	114	110	95	84	71	110	219	653	509	173	54	86
11	113	135	101	86	68	106	219	605	518	167	53	83
12	109	115	102	82	75	110	201	600	554	165	53	83
13	108	116	94	80	121	110	189	619	563	165	51	85
14	110	107	66	82	108	104	187	638	518	154	51	83
15	108	102	94	84	104	106	181	673	467	147	60	80
16	107	112	89	76	84	119	181	739	426	140	59	77
17	106	117	83	78	75	130	219	759	418	132	56	77
18	107	106	82	80	77	128	300	718	406	128	54	75
19	105	82	86	80	78	128	297	673	430	123	59	75
20	105	82	84	80	73	123	268	648	410	121	59	72
21	108	80	87	82	68	123	246	648	375	116	58	70
22	104	82	84	84	70	123	234	708	349	112	74	71
23	103	86	86	86	70	123	234	770	332	106	68	68
24	105	90	82	90	71	130	228	931	314	104	70	58
25	102	94	78	90	71	142	222	990	300	104	69	58
26	101	98	74	86	75	140	237	996	290	98	69	52
27	103	100	78	82	78	132	277	1050	277	98	69	51
28	105	101	74	80	78	121	346	925	261	92	65	54
29	113	97	70	78	---	132	450	744	252	85	60	51
30	110	97	66	74	---	123	554	638	240	81	58	49
31	105	---	60	72	---	119	---	572	---	77	79	---
TOTAL	3426	3238	2613	2447	2163	3583	6689	23781	13850	4646	1919	2194
MEAN	111	108	84.3	78.9	77.3	116	223	767	462	150	61.9	73.1
MAX	129	155	102	90	121	142	554	1180	775	258	79	92
MIN	101	80	60	65	68	70	110	572	240	77	51	49
CFSM	.25	.25	.19	.18	.18	.26	.51	1.74	1.05	.34	.14	.17
IN.	.29	.27	.22	.21	.18	.30	.57	2.01	1.17	.39	.16	.19
AC-FT	6800	6420	5180	4850	4290	7110	13270	47170	27470	9220	3810	4350

CAL YR 1978 TOTAL 105647 MEAN 289 MAX 1290 MIN 50 CFSM .66 IN 8.93 AC-FT 209600
WTR YR 1979 TOTAL 70549 MEAN 193 MAX 1180 MIN 49 CFSM .44 IN 5.96 AC-FT 139900

12301300 TOBACCO RIVER NEAR EUREKA, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1971 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: December 1970 to current year.

INSTRUMENTATION.--Temperature recorder since December 8, 1970.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum, 25.0°C July 23, Aug. 2, 1977; minimum, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum, 23.5°C July 22; minimum, 0.0°C on many days during November to April.

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	11.0	8.0	9.5	5.0	2.0	3.5	1.5	.5	1.0	.0	.0	.0
2	11.0	6.0	8.5	5.5	2.0	4.0	.5	.0	.5	.0	.0	.0
3	8.5	6.5	8.0	6.0	5.0	5.5	1.0	.0	.5	.0	.0	.0
4	10.0	5.5	8.0	6.5	4.0	5.5	1.5	.5	1.0	.0	.0	.0
5	9.5	5.5	7.5	3.5	2.0	3.0	.5	.0	.0	.0	.0	.0
6	9.5	5.5	7.5	4.0	2.0	3.0	.5	.0	.0	.0	.0	.0
7	10.0	5.5	7.5	6.0	4.0	5.0	.5	.0	.0	.0	.0	.0
8	10.5	6.0	8.5	6.5	4.5	6.0	.0	.0	.0	.0	.0	.0
9	11.0	6.0	8.5	4.0	.5	3.0	.5	.0	.0	.0	.0	.0
10	9.5	8.0	8.5	1.0	.0	.5	.5	.0	.0	.0	.0	.0
11	9.0	7.5	8.5	1.0	.0	.5	.0	.0	.0	.0	.0	.0
12	8.5	5.0	7.0	.5	.0	.5	.5	.0	.0	.0	.0	.0
13	7.5	4.0	6.0	.5	.0	.5	.0	.0	.0	.0	.0	.0
14	7.5	3.5	5.5	.5	.0	.5	.0	.0	.0	.0	.0	.0
15	7.5	4.0	6.0	.5	.5	.5	.0	.0	.0	.0	.0	.0
16	8.0	4.5	6.5	.5	.0	.5	.0	.0	.0	.0	.0	.0
17	9.0	5.0	7.0	1.5	.5	1.0	.0	.0	.0	.0	.0	.0
18	8.0	5.0	6.5	.5	.0	.5	.0	.0	.0	.0	.0	.0
19	9.0	5.0	7.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
20	8.5	5.5	7.0	.5	.0	.0	.0	.0	.0	.0	.0	.0
21	8.0	5.5	7.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
22	6.5	3.5	5.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
23	7.5	5.0	6.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
24	7.5	5.5	7.0	.5	.0	.0	.0	.0	.0	.0	.0	.0
25	6.5	3.5	5.0	.5	.0	.0	.0	.0	.0	.0	.0	.0
26	6.0	3.0	4.5	1.0	.0	.5	.0	.0	.0	.0	.0	.0
27	6.0	5.0	5.5	1.5	1.0	1.0	.0	.0	.0	.0	.0	.0
28	6.5	5.0	6.0	2.0	1.0	1.0	.0	.0	.0	.0	.0	.0
29	7.0	5.5	6.0	1.0	.5	.5	.0	.0	.0	.0	.0	.0
30	6.0	4.5	5.0	1.5	.5	1.0	.0	.0	.0	.0	.0	.0
31	5.0	2.5	3.5	---	---	---	.0	.0	.0	.0	.0	.0
MONTH	11.0	2.5	7.0	6.5	.0	1.5	1.5	.0	.0	.0	.0	.0

12301300 TOBACCO RIVER NEAR EUREKA, MT--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	.0	.0	.0	.5	.0	.0	4.0	.0	2.0	7.5	5.0	6.0
2	.0	.0	.0	.5	.0	.0	4.5	.0	2.5	9.0	4.0	6.5
3	.0	.0	.0	1.0	.0	.5	4.0	.5	2.0	7.5	4.5	6.0
4	.0	.0	.0	1.5	.0	1.0	5.5	1.5	3.5	6.5	5.0	6.0
5	.0	.0	.0	3.5	1.0	1.5	7.5	2.5	5.0	6.0	4.5	5.5
6	.0	.0	.0	3.0	1.5	2.0	7.5	3.0	5.5	5.5	4.5	4.5
7	.0	.0	.0	2.5	1.0	2.0	7.0	3.5	5.0	6.5	4.0	5.0
8	.0	.0	.0	2.5	.0	1.0	6.5	2.0	4.0	7.0	4.0	5.5
9	.0	.0	.0	3.5	.0	1.5	5.5	3.5	4.5	9.5	3.5	6.5
10	.0	.0	.0	4.5	.0	1.5	4.0	2.0	3.0	8.0	4.5	6.5
11	.0	.0	.0	5.0	.0	2.0	6.5	1.5	3.5	10.0	4.5	7.0
12	.0	.0	.0	5.5	1.5	3.0	5.0	2.5	3.5	8.5	5.0	7.0
13	.0	.0	.0	4.5	.0	2.0	6.5	3.0	4.5	10.5	5.0	7.5
14	.5	.0	.0	5.0	.0	2.0	8.0	3.5	5.5	11.0	5.0	8.0
15	.0	.0	.0	5.5	.0	2.5	7.0	3.0	5.0	9.5	5.5	8.0
16	.0	.0	.0	3.5	1.5	2.5	7.5	3.5	5.0	10.5	6.0	7.5
17	.0	.0	.0	4.0	1.0	2.5	8.0	5.0	6.0	9.0	4.5	7.0
18	.5	.0	.0	5.5	.0	2.5	6.5	3.5	5.0	10.5	6.0	8.0
19	.5	.0	.0	4.5	1.0	3.0	8.0	3.5	5.0	10.5	5.0	8.0
20	.5	.0	.0	5.5	.5	2.5	7.0	3.5	5.0	11.0	5.0	8.0
21	.0	.0	.0	4.5	.0	2.0	8.0	2.5	5.0	12.0	6.0	9.0
22	.5	.0	.0	4.5	.5	2.5	6.0	2.5	4.5	11.5	6.0	9.0
23	.0	.0	.0	6.5	.0	3.0	5.5	3.5	4.5	11.5	6.0	9.0
24	.0	.0	.0	7.0	1.0	4.0	7.5	3.5	5.0	10.0	7.5	9.0
25	.5	.0	.0	4.0	1.5	2.5	9.5	3.0	6.0	10.5	6.5	8.5
26	.5	.0	.0	2.5	.0	1.5	11.5	4.5	7.5	10.0	6.5	8.5
27	.5	.0	.0	2.0	.0	.5	11.5	5.0	8.0	9.5	6.5	8.0
28	.5	.0	.0	3.0	.0	1.0	11.5	5.5	8.5	7.5	5.5	6.5
29	---	---	---	5.0	.5	2.5	11.0	5.0	8.0	8.5	4.5	6.5
30	---	---	---	5.0	1.5	3.0	9.5	5.5	7.5	10.0	4.5	7.0
31	---	---	---	3.0	.5	2.0	---	---	---	11.0	5.0	8.0
NTH	.5	.0	.0	7.0	.0	2.0	11.5	.0	5.0	12.0	3.5	7.0

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	12.0	6.5	9.5	12.0	10.0	11.0	23.0	15.5	19.0	19.0	12.5	15.5
2	12.5	8.0	10.0	12.5	8.5	10.5	22.0	15.5	19.0	19.0	13.5	16.0
3	13.0	7.5	10.0	17.0	7.5	12.0	22.0	15.0	18.5	16.0	14.0	15.0
4	10.0	7.5	8.5	18.0	11.0	14.5	22.0	14.5	18.5	15.0	12.5	13.5
5	10.0	7.0	8.0	19.5	12.5	16.0	22.5	15.5	19.0	17.0	10.5	13.5
6	7.5	5.5	6.5	19.0	13.5	16.5	22.5	14.5	18.0	17.0	11.0	14.0
7	10.5	5.5	7.5	20.0	13.5	16.5	22.5	14.5	18.5	18.5	12.0	15.0
8	10.5	6.0	8.5	19.5	13.0	16.0	22.0	15.0	18.5	17.5	12.0	15.0
9	13.0	7.5	10.0	19.0	12.5	16.0	22.5	15.0	18.5	15.5	13.0	14.0
10	11.5	7.5	9.5	20.0	14.0	16.5	23.0	15.0	19.0	16.0	10.5	13.0
11	14.0	7.5	10.5	16.0	13.0	14.5	20.0	15.5	18.0	16.0	10.5	13.0
12	14.5	8.5	11.0	18.0	11.5	14.5	22.5	15.0	18.5	16.0	10.0	13.0
13	13.0	8.5	10.5	18.0	11.5	14.5	20.5	15.5	18.0	16.0	10.0	13.0
14	12.0	6.5	9.0	18.5	12.5	15.5	18.5	16.5	17.0	16.5	10.0	13.0
15	10.0	6.0	8.0	19.0	12.5	15.5	20.0	15.0	17.5	16.5	10.0	13.5
16	12.0	6.0	9.0	21.0	12.0	16.5	21.5	14.5	18.0	17.5	11.5	14.5
17	12.0	8.0	9.5	22.0	13.5	17.5	21.5	14.5	18.0	16.5	10.5	13.5
18	14.0	8.5	11.0	22.5	14.5	18.5	21.5	15.5	18.5	16.0	10.0	13.0
19	11.0	9.0	10.0	23.0	15.0	19.0	20.5	16.5	18.0	16.5	10.5	13.5
20	12.0	8.0	9.5	21.0	15.5	18.5	20.5	16.5	18.5	17.0	11.0	14.0
21	12.0	7.0	9.5	23.0	15.5	19.0	20.5	16.5	18.5	16.5	11.5	14.0
22	13.5	7.5	10.5	23.5	16.5	20.0	21.5	15.5	18.5	15.0	10.0	12.5
23	14.5	8.0	11.0	22.5	15.5	19.0	20.5	14.5	17.5	15.5	9.5	12.5
24	16.0	8.5	12.0	20.5	15.5	18.0	18.5	16.0	17.0	15.5	9.5	12.5
25	16.5	9.0	12.5	20.0	15.0	17.0	19.5	14.0	16.5	14.5	9.0	11.5
26	17.0	9.5	13.0	21.5	14.0	18.0	21.0	13.5	17.0	16.0	10.5	13.0
27	17.5	11.0	14.0	21.5	14.5	18.5	19.5	14.5	17.0	15.0	11.0	13.0
28	18.0	10.5	14.0	19.5	15.0	17.0	19.5	14.0	17.0	14.5	11.0	12.0
29	16.5	11.0	14.0	21.5	14.5	17.5	21.0	14.0	17.0	13.0	8.0	10.5
30	15.0	11.5	13.0	21.0	15.0	18.5	19.5	14.5	17.0	15.0	9.5	11.5
31	---	---	---	22.5	15.0	18.5	16.5	15.0	15.5	---	---	---
MONTH	18.0	5.5	10.5	23.5	7.5	16.5	23.0	13.5	18.0	19.0	8.0	13.5
YEAR	23.5	.0	7.0									

KOOTENAI RIVER BASIN

12301550 PINKHAM CREEK NEAR REXFORD, MT

LOCATION.--Lat 48°49'57", long 115°13'39", in NE¼NE¼NW¼ sec.4, T.35 N., R.28 W., Lincoln County, Hydrologic Unit 17010101, Kootenai National Forest, on right bank 200 ft (60 m) upstream from road bridge, 0.9 mi (1.4 km) upstream from Lake Koocanusa flow line, and 5.5 mi (8.8 km) southwest of present site of Rexford.

DRAINAGE AREA.--75.7 mi² (196.1 km²).

PERIOD OF RECORD.--October 1972 to current year.

GAGE.--Water-stage recorder. Datum of gage is 2,638.57 ft (804.236 m) National Geodetic Vertical Datum of 1929 (U.S. Army Corps of Engineers bench mark).

REMARKS.--Records fair. No known regulations or diversions above station. Several observations of water temperature were made during the year and are available in files of Helena district office.

AVERAGE DISCHARGE.--7 years, 25.3 ft³/s (0.716 m³/s), 4.54 in/yr (115 mm/yr), 18,330 acre-ft/yr (22.6 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 689 ft³/s (19.5 m³/s) May 11, 1976, gage height, 4.26 ft (1.298 m); no flow at times most years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 263 ft³/s (7.45 m³/s) May 6, gage height, 2.85 ft (0.869 m), only peak above base of 250 ft³/s (7.08 m³/s); no flow on many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.67	.85	.80	.00	.00	.25	4.3	147	45	3.9	.00	.00
2	.71	.85	.80	.00	.00	.25	4.9	130	41	7.1	.00	.00
3	.71	.95	.80	.00	.00	.25	4.6	134	38	6.9	.00	.00
4	.67	4.1	.76	.00	.00	.25	4.8	146	37	4.6	.00	.00
5	.63	11	.71	.00	.00	.25	5.7	187	37	3.7	.00	.00
6	.63	5.6	.65	.00	.00	.38	8.9	211	46	2.9	.00	.00
7	.63	4.1	.55	.00	.00	1.5	16	140	46	2.1	.00	.00
8	.59	3.4	.50	.00	.00	2.5	20	119	39	1.6	.00	.00
9	.59	4.1	.44	.00	.00	2.4	22	102	33	1.3	.00	.00
10	.59	1.3	.42	.00	.00	2.5	23	102	29	.99	.00	.00
11	.59	.59	.47	.00	.00	3.0	20	100	26	.78	.00	.00
12	.58	.63	.50	.00	.00	4.5	18	116	23	.73	.00	.00
13	.58	.60	.67	.00	.00	4.8	17	122	21	.79	.00	.00
14	.56	.55	.67	.00	.10	5.7	18	126	19	.68	.00	.00
15	.56	.50	.59	.00	.27	5.5	18	124	18	.51	.00	.00
16	.55	.44	.59	.00	.27	6.2	19	136	17	.29	.00	.00
17	.55	.42	.59	.00	.27	6.9	30	131	18	.10	.00	.00
18	.50	.55	.63	.00	.27	6.9	48	120	18	.00	.00	.00
19	.52	.67	.63	.00	.27	7.4	42	120	18	.00	.00	.00
20	.52	.76	.63	.00	.27	6.2	35	110	16	.00	.00	.00
21	.52	.60	.71	.00	.27	5.8	31	109	14	.00	.00	.00
22	.63	.65	.76	.00	.27	6.7	31	115	12	.00	.00	.00
23	.67	.67	.76	.00	.27	5.8	32	118	11	.00	.00	.00
24	.71	.67	.85	.00	.26	7.3	30	133	9.2	.00	.00	.00
25	.90	.71	.76	.00	.25	9.9	30	126	7.9	.00	.00	.00
26	.90	.76	.70	.00	.25	10	49	108	6.7	.00	.00	.00
27	.80	.76	.60	.00	.25	7.2	77	95	5.5	.00	.00	.00
28	.85	.76	.40	.00	.25	6.6	126	75	4.6	.00	.00	.00
29	1.1	.76	.20	.00	---	7.6	142	62	3.9	.00	.00	.00
30	1.3	.80	.05	.00	---	6.6	152	53	3.4	.00	.00	.00
31	1.2	---	.00	.00	---	5.5	---	51	---	.00	.00	---
TOTAL	21.51	49.10	18.19	.00	3.79	146.63	1079.2	3668	663.2	38.97	.00	.00
MEAN	.69	1.64	.59	.000	.14	4.73	36.0	118	22.1	1.26	.000	.000
MAX	1.3	11	.85	.00	.27	10	152	211	46	7.1	.00	.00
MIN	.50	.42	.00	.00	.00	.25	4.3	51	3.4	.00	.00	.00
CFSM	.009	.02	.008	.000	.002	.06	.48	1.56	.29	.02	.000	.000
IN.	.01	.02	.01	.00	.00	.07	.53	1.80	.33	.02	.00	.00
AC-FT	43	97	36	.00	7.5	291	2140	7280	1320	77	.00	.00

CAL YR 1978 TOTAL 10586.51 MEAN 29.0 MAX 245 MIN .00 CFSM .38 IN 5.20 AC-FT 21000
WTR YR 1979 TOTAL 5688.59 MEAN 15.6 MAX 211 MIN .00 CFSM .21 IN 2.80 AC-FT 11280

12301810 BIG CREEK NEAR REXFORD, MT

LOCATION.--Lat 48°44'53", long 115°21'09", in SE¼SW¼SE¼ sec.33, T.35 N., R.29 W., Lincoln County, Hydrologic Unit 17010101, Kootenai National Forest, on left bank 500 ft (150 m) downstream from highway bridge, 0.3 mi (0.5 km) upstream from Lake Koocanusa flow line, and 13.6 mi (21.9 km) southwest of present site of Rexford.

DRAINAGE AREA.--139 mi² (360 km²).

PERIOD OF RECORD.--October 1972 to current year.

GAGE.--Water-stage recorder. Datum of gage is 2,500.43 ft (762.131 m) National Geodetic Vertical Datum of 1929 (U.S. Army Corps of Engineers bench mark).

REMARKS.--Records good except those for winter, which are poor. No known regulation or diversions above station. Several observations of water temperature were made during the year and are available in files of the Helena district office.

AVERAGE DISCHARGE.--7 years, 121 ft³/s (3.427 m³/s), 11.82 in/yr (300 mm/yr), 87,660 acre-ft/yr (108 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,680 ft³/s (75.9 m³/s) May 11, 1976; maximum gage height, 6.78 ft (2.067 m) May 11, 1976; minimum daily discharge, 5.0 ft³/s (0.14 m³/s) Dec. 9, 1972.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 917 ft³/s (26.0 m³/s) May 5, gage height, 4.72 ft (1.439 m), no peaks above base of 1,000 ft³/s (28.3 m³/s); minimum, 5.9 ft³/s (0.17 m³/s) Sept. 29, 30, gage height, 1.38 ft (0.421 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19	16	15	11	10	16	26	520	256	46	11	9.1
2	18	15	15	12	9.7	18	26	475	235	51	9.9	9.1
3	17	16	15	13	9.7	15	27	517	223	45	9.6	9.9
4	17	36	15	13	9.7	12	26	601	212	39	9.4	11
5	17	34	14	13	9.7	19	27	821	207	36	9.3	11
6	17	27	13	13	9.7	22	31	871	225	34	8.7	11
7	16	25	12	13	9.7	26	43	767	208	32	8.4	10
8	16	25	13	13	11	25	48	642	186	30	8.2	9.4
9	16	25	13	13	11	24	56	538	165	28	8.0	9.1
10	16	23	14	14	11	23	59	519	149	26	7.9	8.6
11	16	22	14	14	10	23	59	512	136	25	7.8	9.1
12	16	21	14	14	14	23	58	584	124	24	7.7	9.1
13	15	20	14	14	20	22	57	640	113	24	7.5	8.3
14	15	20	13	14	18	22	54	687	104	23	7.7	8.0
15	15	21	13	13	16	24	53	771	98	22	9.1	7.9
16	15	21	13	13	12	27	53	859	93	21	8.4	7.7
17	15	22	13	13	12	30	67	824	87	20	8.0	7.1
18	15	21	13	13	12	33	89	750	82	18	7.7	7.1
19	15	20	13	14	13	37	90	715	76	17	7.8	6.9
20	15	18	13	14	12	36	85	661	71	17	7.9	6.9
21	16	16	13	14	10	35	80	670	66	16	7.7	6.9
22	16	15	13	13	11	34	83	708	63	15	8.8	6.7
23	15	16	13	13	12	33	90	753	59	14	8.7	6.7
24	16	17	13	12	11	37	89	790	54	13	9.5	6.7
25	17	18	12	12	11	42	94	702	51	13	11	6.5
26	16	17	12	11	12	41	129	639	47	13	11	6.5
27	15	16	13	11	13	38	186	562	43	13	9.8	6.5
28	15	16	13	11	14	37	291	446	39	12	9.9	6.4
29	17	16	12	10	---	34	412	367	38	12	9.6	6.0
30	18	15	12	10	---	32	518	322	36	11	9.1	5.9
31	17	---	12	10	---	30	---	289	---	11	9.1	---
TOTAL	499	610	410	391	334.2	870	3010	19522	3546	721	274.2	241.1
MEAN	16.1	20.3	13.2	12.6	11.9	28.1	100	630	118	23.3	8.85	8.04
MAX	19	36	15	14	20	42	518	871	256	51	11	11
MIN	15	15	12	10	9.7	12	26	289	36	11	7.5	5.9
CFSM	.12	.15	.10	.09	.09	.20	.72	4.53	.85	.17	.06	.06
IN.	.13	.16	.11	.10	.09	.23	.81	5.22	.95	.19	.07	.06
AC-FT	990	1210	813	776	663	1730	5970	38720	7030	1430	544	478

CAL YR 1978 TOTAL 49329.0 MEAN 135 MAX 1770 MIN 12 CFSM .97 IN 13.20 AC-FT 97840
WTR YR 1979 TOTAL 30428.5 MEAN 83.4 MAX 871 MIN 5.9 CFSM .60 IN 8.14 AC-FT 60350

12301830 LAKE KOOCANUSA AT TENMILE CREEK, NEAR LIBBY, MT

LOCATION.--Lat 48°35'06", long 115°13'52", in NW¼NE¼NW¼ sec.33, T.33 N., R.28 W., Lincoln County, Hydrologic Unit 17010101, in middle of old channel at Tenmile Creek, and 20.1 mi (32.3 km) northeast of Libby.

PERIOD OF RECORD.--Water years 1972 to current year.

REMARKS.--Additional vertical profiles for temperature, specific conductance, dissolved oxygen, pH, transmissibility, and natural light penetration are available in files in Helena district office.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	SAMP-LING DEPTH (FT) (00003)	ELEV-ATION (FT. NGVD) (72020)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	ALKA-LINITY (MG/L AS CACO3) (00410)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)
OCT											
10...	1115	1.5	2453.00	2	195	8.4	11.5	14.0	9.3	93	2.9
10...	1145	10	2453.00	2	195	8.4	11.5	14.0	9.2	92	2.9
10...	1215	50	2453.00	2	200	8.3	11.5	13.8	9.1	92	--
10...	1245	251	2453.00	2	260	7.9	11.5	5.3	8.2	120	6.0
23...	1115	1.5	2450.00	2	200	8.4	7.0	12.0	9.4	93	3.0
23...	1145	10	2450.00	2	200	8.4	7.0	12.0	9.4	94	2.9
23...	1215	55	2450.00	2	200	8.3	7.0	11.9	9.1	92	--
23...	1245	245	2450.00	2	250	7.9	7.0	5.2	8.2	120	6.0
MAY											
15...	1400	1.5	2380.00	0	290	8.5	13.0	11.0	12.2	110	3.5
15...	1430	10	2380.00	0	290	8.4	13.0	9.2	12.2	100	3.6
15...	1500	45	2380.00	0	290	8.2	13.0	13.7	12.2	100	--
15...	1530	177	2380.00	0	310	7.9	13.0	4.5	11.5	110	3.7
29...	1230	1.5	2403.00	2	270	8.6	9.0	12.1	10.4	100	3.7
29...	1300	10	2403.00	2	272	8.6	9.0	11.5	10.6	110	3.7
29...	1330	25	2403.00	2	275	8.6	9.0	10.5	10.6	100	--
29...	1400	130	2403.00	2	308	8.2	9.0	3.8	10.1	110	3.4
JUN											
12...	1230	1.5	2423.00	0	265	8.6	28.0	14.2	9.8	100	4.1
12...	1300	10	2423.00	0	264	8.5	28.0	13.5	9.9	100	4.0
12...	1330	40	2423.00	0	238	8.4	28.0	10.6	9.6	98	--
12...	1400	130	2423.00	0	296	8.3	28.0	5.6	10.6	110	3.5
26...	1300	1.5	2436.00	0	250	8.6	22.0	17.9	9.8	91	4.1
26...	1330	10	2436.00	0	247	8.6	22.0	17.9	10.2	91	4.1
26...	1400	40	2436.00	0	231	8.4	22.0	12.5	9.9	--	--
26...	1430	130	2436.00	0	299	8.2	22.0	6.7	10.0	100	4.1
JUL											
12...	1030	1.5	2446.00	80	247	8.6	16.0	18.0	9.4	95	4.1
12...	1100	10	2446.00	80	242	8.6	16.0	17.9	9.5	94	4.1
12...	1130	50	2446.00	80	232	8.2	16.0	12.5	9.3	91	--
12...	1200	140	2446.00	80	306	8.3	16.0	6.5	9.5	110	4.4
AUG											
09...	1100	1.5	2451.00	0	240	8.7	19.5	20.3	9.2	93	3.0
09...	1130	10	2451.00	0	238	8.6	19.5	20.0	9.3	93	3.0
09...	1200	60	2451.00	0	235	8.0	19.5	13.2	8.7	91	--
09...	1230	248	2451.00	0	306	7.6	19.5	4.0	8.5	110	4.4
21...	1230	1.5	2451.00	3	220	8.7	21.0	20.7	8.8	93	3.0
21...	1300	10	2451.00	3	220	8.8	21.0	20.5	8.9	92	3.0
21...	1330	70	2451.00	3	215	8.1	21.0	13.8	8.4	90	--
21...	1400	258	2451.00	3	265	7.9	21.0	4.0	8.1	115	4.7
SEP											
04...	1230	1.5	2451.00	65	221	8.7	12.5	19.4	8.9	93	2.9
04...	1300	10	2451.00	65	220	8.7	12.5	19.4	8.9	94	3.0
04...	1330	70	2451.00	65	216	8.0	12.5	13.6	8.6	91	--
04...	1400	236	2451.00	65	260	7.8	12.5	4.2	8.6	117	4.8
18...	1130	1.5	2449.00	0	222	8.7	22.0	18.4	8.8	93	3.1
18...	1200	10	2449.00	0	223	8.7	22.0	18.3	8.8	94	3.1
18...	1230	70	2449.00	0	218	8.0	22.0	13.4	8.2	95	--
18...	1300	252	2449.00	0	283	7.9	22.0	4.3	8.2	110	5.0

12301830 LAKE KOOCANUSA AT TENMILE CREEK, NEAR LIBBY, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, KJEL-DAHL TOTAL (MG/L AS N) (00625)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P) (00671)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CHLOR-A PHYTO-PLANK-TON CHROMO FLUOROM (UG/L) (70953)	CHLOR-B PHYTO-PLANK-TON CHROMO FLUOROM (UG/L) (70954)
OCT												
10...	.01	.01	.00	--	--	--	.003	.000	.000	1.5	1.53	.023
10...	.01	.01	.00	--	--	--	.004	.000	.000	1.4	1.33	.023
10...	--	--	--	--	--	--	--	--	--	--	1.43	.000
10...	.16	.20	.06	--	--	--	.033	.009	.009	2.8	--	--
23...	.01	--	.01	--	--	--	.002	.000	.000	1.6	.355	.000
23...	.01	--	.00	--	--	--	.003	.001	.000	2.2	1.62	.063
23...	--	--	--	--	--	--	--	--	--	--	.755	.000
23...	.17	--	.01	--	--	--	.012	.010	.007	2.3	--	--
MAY												
15...	.01	--	.01	--	--	--	.008	.003	.000	2.0	.297	.000
15...	.00	--	.01	--	--	--	.007	.006	.001	2.1	.736	.000
15...	--	--	--	--	--	--	--	--	--	--	.969	.000
15...	.05	--	.01	--	--	--	.007	.001	.000	2.2	--	--
29...	.01	--	.03	--	--	--	.036	.005	.000	2.1	.277	.000
29...	.02	--	.02	--	--	--	.004	.004	.000	2.3	.390	.000
29...	--	--	--	--	--	--	--	--	--	--	.315	.000
29...	.00	--	.03	--	--	--	.004	.001	.000	2.2	--	--
JUN												
12...	.05	--	.00	.35	.41	.46	.003	.002	.001	2.7	--	--
12...	.05	--	.01	.56	.57	.62	.004	.000	.000	2.4	--	--
12...	--	--	--	--	--	--	--	--	--	--	--	--
12...	.05	--	.03	.32	.35	.40	.004	.002	.000	1.8	--	--
26...	.05	.01	.02	.03	.05	.10	.004	--	--	3.3	.030	.000
26...	.05	.02	.02	.12	.14	.19	.005	.005	.001	3.2	--	--
26...	--	--	--	--	--	--	--	--	--	--	.200	.000
26...	.11	.06	.03	.08	.11	.22	--	--	--	3.3	--	--
JUL												
12...	.04	--	.00	.04	.04	.08	.005	.005	.000	1.6	.068	.048
12...	.05	--	.00	.14	.14	.19	.006	.006	.001	1.9	.373	.010
12...	--	--	--	--	--	--	--	--	--	--	.306	.014
12...	.09	--	.00	.17	.17	.26	.008	.008	.001	2.2	--	--
AUG												
09...	.01	--	.00	.10	.10	.11	.000	.001	.001	2.7	.000	.000
09...	.01	--	.00	.09	.09	.10	.000	.012	.000	4.1	.212	.013
09...	--	--	--	--	--	--	--	--	--	--	.071	.000
09...	.11	--	.00	.03	.03	.14	.014	.007	.000	1.7	--	--
21...	.01	--	.00	.00	.00	.01	.006	.001	.000	1.7	.085	.012
21...	.01	--	.00	.43	.43	.44	.006	.003	.000	2.4	.178	.024
21...	--	--	--	--	--	--	--	--	--	--	.238	.000
21...	.13	--	.00	.00	.00	.13	.015	.011	.003	2.2	--	--
SEP												
08...	.01	—	.01	.07	.08	.09	.000	.006	.000	20	.255	.000
08...	.01	—	.01	.46	.47	.48	.000	.003	.000	1.7	.216	.000
08...	--	—	--	--	--	--	--	--	--	--	.334	.018
08...	.14	—	.01	.05	.06	.20	.005	.007	.000	1.8	--	--
18...	.01	—	.00	1.8	1.8	1.8	.002	.000	.000	2.0	.049	.000
18...	.01	—	.00	.25	.25	.26	.000	.001	.000	1.3	.033	.000
18...	--	—	--	--	--	--	--	--	--	--	.261	.023
18...	.13	—	.13	.13	.26	.39	.006	.006	.000	.7	--	--

DATE	TIME	SAMP-LING DEPTH (FT) (00003)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)
OCT										
10...	1115	1.5	110	17	30	8.3	1.8	.1	.4	16
10...	1145	10	110	16	30	8.1	1.8	.1	.4	15
10...	1205	251	150	30	40	12	3.8	.1	.7	29
JUN										
26...	1300	1.5	110	23	31	9.0	2.8	.1	.6	22
26...	1330	10	120	26	32	9.0	2.9	.1	.6	23
26...	1430	130	130	34	37	10	3.6	.1	.6	26

12301830 LAKE KOOCANUSA AT TENMILE CREEK, NEAR LIBBY, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	CHLORIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUORIDE, DIS-SOLVED (MG/L AS F) (00950)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	ALUM-INUM, TOTAL RECOV-ERABLE (UG/L AS AL) (01105)	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)
OCT									
10...	1.9	.1	116	.16	60	20	0	0	100
10...	2.0	.1	168	.23	50	20	0	0	50
10...	4.0	.1	118	.16	70	10	0	0	90
JUN									
26...	2.9	.1	127	.17	80	10	0	0	20
26...	2.9	.1	129	.18	60	10	0	0	70
26...	3.7	.1	145	.20	80	10	0	0	50

DATE	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MOLYB-DENUM, TOTAL RECOV-ERABLE (UG/L AS MO) (01062)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO) (01060)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
OCT									
10...	20	2	0	0	0	4	0	10	10
10...	20	6	0	0	0	5	0	10	0
10...	30	2	0	20	0	4	0	20	10
JUN									
26...	0	39	13	0	0	0	0	30	10
26...	10	10	14	0	0	0	0	10	10
26...	10	10	1	10	0	0	0	10	10

12301830 LAKE KOOCANUSA AT TENMILE CREEK, NEAR LIBBY, MT--Continued

SELECTED VERTICAL PROFILES

MAY 29*

DEPTH (FT)	TEMPERATURE (DEG C)	SPECIFIC CONDUCTANCE (MICROMHOS)	DISSOLVED OXYGEN (MG/L)	PH (UNITS)	TRANSMISSIBILITY (PERCENT)
0	12.1	270	10.4	8.6	
1	12.1	270	10.4	8.6	21
3	12.1	270	10.4	8.7	21
5	12.0	267	10.5	8.7	21
10	11.5	272	10.6	8.6	17
15	11.4	270	10.6	8.6	16
20	11.2	266	10.6	8.6	17
25	10.5	275	10.6	8.6	20
30	10.5	277	10.6	8.6	28
35	10.1	275	10.3	8.6	30
40	9.8	282	10.3	8.5	24
45	9.3	283	10.4	8.5	27
50	8.5	288	10.3	8.5	28
60	7.5	292	10.4	8.4	33
70	6.8	293	10.6	8.4	35
80	6.3	291	10.8	8.4	41
90	5.6	291	11.1	8.4	41
100	4.5	289	11.3	8.4	41
110	4.4	293	11.2	8.3	37
120	3.8	300	10.5	8.3	35
130	3.8	308	10.1	8.2	33

* Obstructions prevented profiles below 130 ft.

AUG. 21

DEPTH (FT)	TEMPERATURE (DEG C)	SPECIFIC CONDUCTANCE (MICROMHOS)	DISSOLVED OXYGEN (MG/L)	PH (UNITS)	TRANSMISSIBILITY (PERCENT)
0	20.7	220	8.8	8.7	
1	20.7	220	8.8	8.7	32
3	20.6	221	8.8	8.7	32
5	20.6	220	8.8	8.7	32
10	20.5	220	8.9	8.8	30
15	20.4	221	9.0	8.8	30
20	20.3	220	9.0	8.8	30
25	20.3	218	9.1	8.7	28
30	20.0	217	9.1	8.7	28
35	19.7	215	9.0	8.6	27
40	19.1	215	8.9	8.6	28
45	18.3	214	8.6	8.3	30
50	17.2	213	8.6	8.2	33
55	15.6	213	8.2	8.1	35
60	14.9	212	8.2	8.1	37
65	14.3	215	8.2	8.1	35
70	13.8	215	8.4	8.1	33
75	13.4	215	8.4	8.1	35
80	13.0	216	8.5	8.1	35
90	12.4	219	8.7	8.1	35
100	11.6	222	8.9	8.1	33
105	11.4	222	8.9	8.1	32
110	11.1	223	9.1	8.1	30
115	10.2	227	9.2	8.1	32
120	9.3	238	9.4	8.1	32
130	8.7	245	9.4	8.1	28
140	8.3	250	9.5	8.1	27
145	7.6	249	9.3	8.1	25
150	6.9	258	9.4	8.1	25
160	6.3	259	9.9	8.1	25
170	5.6	264	9.8	8.1	27
185	4.9	269	9.7	8.0	24
200	4.6	273	9.3	8.0	25
215	4.1	279	8.6	7.9	21
230	4.0	280	8.4	7.9	19
245	4.0	281	8.2	7.9	19
258	4.0	285	8.1	7.9	18
265	4.0	287	7.9	7.9	18

PRIMARY PRODUCTIVITY IN THE EUPHOTIC ZONE

DATE	PRIMARY PRODUCTIVITY (MG C/M2/DAY)
OCT.	
10. . .	160
23. . .	200
MAY	
15. . .	140
29. . .	91
JUNE	
12. . .	140
26. . .	170
JULY	
12. . .	110
AUG.	
9. . .	160
21. . .	160
SEPT.	
4. . .	100
18. . .	150

(carbon-14, light and dark bottle method)

12301919 LAKE KOOCANUSA AT FOREBAY, NEAR LIBBY, MT

LOCATION.--Lat 48°24'43", long 115°18'33", in SW¼NW¼NE¼ sec.33, T.31 N., R.29 W., Lincoln County, Hydrologic Unit 17010101, in middle of old channel 0.2 mi (0.3 km) upstream from Libby Dam, and 11.6 mi (18.7 km) east of Libby.

PERIOD OF RECORD.--Water years 1972 to current year.

REMARKS.--Additional vertical profiles for temperature, specific conductance, dissolved oxygen, pH, transmissibility, and natural light penetration are available in files in Helena district office.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	SAMPLING DEPTH (FT) (00003)	ELEVATION (FT. NGVD) (72020)	WEATHER (WMO CODE NUMBER) (00041)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	ALKALINITY (MG/L AS CACO3) (00410)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)
OCT												
12...	1115	1.5	2452.00	0	200	8.4	10.0	13.0	9.2	89	3.3	.02
12...	1145	10	2452.00	0	200	8.4	10.0	12.8	9.2	89	3.4	.02
12...	1215	55	2452.00	0	185	8.0	10.0	11.1	9.0	86	--	--
12...	1245	305	2452.00	0	265	7.7	10.0	4.9	8.5	120	6.0	.18
25...	1015	1.5	2450.00	0	195	8.4	1.0	11.8	9.2	93	3.3	.02
25...	1030	10	2450.00	0	190	8.4	1.0	11.8	9.2	92	3.2	.02
25...	1115	55	2450.00	0	185	8.4	1.0	11.2	9.2	92	--	--
25...	1145	302	2450.00	0	250	7.7	1.0	4.9	7.7	120	6.2	.18
MAY												
16...	1015	1.5	2381.00	2	290	8.5	10.0	10.0	12.4	103	3.4	.08
16...	1045	10	2381.00	2	280	8.5	10.0	8.8	12.4	108	3.4	.08
16...	1115	50	2381.00	2	280	8.3	10.0	8.0	12.2	108	--	--
16...	1145	237	2381.00	2	350	7.9	10.0	4.0	5.4	120	6.9	.28
30...	0930	1.5	2405.00	1	272	8.7	10.0	10.5	10.0	104	3.2	.01
30...	1000	10	2405.00	1	274	8.7	10.0	10.1	10.1	103	3.2	.02
30...	1030	40	2405.00	1	271	8.7	10.0	10.0	10.2	103	--	--
30...	1100	252	2405.00	1	361	8.0	10.0	2.8	5.6	140	6.1	.25
JUN												
13...	1030	1.5	2424.00	0	209	8.5	15.0	11.7	10.3	104	4.1	.06
13...	1100	10	2424.00	0	209	8.5	15.0	11.4	10.3	99	4.1	.07
13...	1115	35	2424.00	0	--	8.5	15.0	10.7	10.4	99	--	--
13...	1145	278	2424.00	0	356	7.8	15.0	2.7	6.3	135	6.1	.24
29...	1230	1.5	2438.00	1	259	8.6	20.5	19.7	8.9	90	4.3	.04
29...	1300	10	2438.00	1	249	8.5	20.5	15.0	9.7	90	4.7	.06
29...	1330	57	2438.00	1	250	8.4	20.5	12.5	9.2	--	--	--
29...	1400	290	2438.00	1	347	7.8	20.5	2.9	6.0	120	7.0	.24
JUL												
10...	1430	1.5	2445.00	1	250	8.6	23.0	19.4	9.0	98	4.2	.06
10...	1500	10	2445.00	1	248	8.7	--	19.4	9.2	98	4.0	.07
10...	1530	55	2445.00	1	242	8.4	--	13.9	9.1	96	--	--
10...	1600	284	2445.00	1	330	7.9	--	3.0	7.0	124	5.3	.19
24...	1300	1.5	2450.00	1	245	8.7	24.0	20.9	9.9	111	3.3	.01
24...	1350	10	2450.00	1	236	8.7	24.0	20.5	11.0	104	3.4	.01
24...	1400	55	2450.00	1	241	8.2	24.0	13.8	8.8	96	--	--
24...	1430	285	2450.00	1	331	8.0	24.0	3.1	7.2	127	5.5	.16
AUG												
07...	1300	1.5	2451.00	0	241	8.6	19.0	19.8	9.2	92	3.2	.02
07...	1330	10	2451.00	0	239	8.6	19.0	19.4	9.3	93	3.2	.00
07...	1400	55	2451.00	0	234	8.1	19.0	14.7	8.5	91	--	--
07...	1415	305	2451.00	0	331	7.8	19.0	3.1	7.0	121	5.6	.17
AUG												
23...	1030	1.5	2451.00	0	222	8.8	17.0	20.6	8.7	150	2.9	.00
23...	1100	10	2451.00	0	222	8.7	17.0	20.5	8.8	93	3.0	.00
23...	1130	70	2451.00	0	222	8.1	17.0	13.1	8.3	91	--	--
23...	1200	300	2451.00	0	302	7.8	17.0	3.2	6.6	121	5.2	.15
SEP												
06...	1200	1.5	2451.00	1	220	8.7	--	18.7	8.9	94	2.8	.04
06...	1230	10	2451.00	1	220	8.6	--	18.6	8.9	93	2.9	.10
06...	1300	70	2451.00	1	222	8.0	--	13.3	8.3	101	--	--
06...	1350	303	2451.00	1	302	7.6	--	3.3	6.9	125	5.7	.17
20...	1030	1.5	2449.00	0	222	8.6	20.0	18.4	9.0	95	3.2	.08
20...	1100	10	2449.00	0	222	8.6	20.0	18.3	9.0	97	3.2	.02
20...	1130	70	2449.00	0	215	7.9	20.0	14.6	7.9	93	--	--
20...	1200	310	2449.00	0	300	7.8	20.0	3.4	6.2	120	6.2	.23

12301919 LAKE KOOCANUSA AT FOREBAY, NEAR LIBBY, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, KJEL-DAHL, TOTAL (MG/L AS N) (00625)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P) (00671)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CHLOR-A PHYTO-PLANK-TON CHROMO FLUOROM (UG/L) (70953)	CHLOR-B PHYTO-PLANK-TON CHROMO FLUORUM (UG/L) (70954)
OCT											
12...	.06	.01	.65	.66	.68	.001	.000	.000	1.7	1.15	.000
12...	.00	.01	1.4	1.4	1.4	.000	.000	.000	1.3	1.54	1.54
12...	--	--	--	--	--	--	--	--	--	.454	.035
12...	.01	.01	.72	.73	.91	.015	.012	.012	1.9	--	--
25...	--	.01	--	--	--	.005	.000	.000	1.7	.822	.064
25...	--	.01	--	--	--	.003	.000	.000	1.3	1.27	.032
25...	--	--	--	--	--	--	--	--	--	.666	.000
25...	--	.01	--	--	--	.017	.014	.007	1.5	--	--
MAY											
16...	--	.00	--	--	--	.006	.000	.000	1.8	.400	.000
16...	--	.01	--	--	--	.004	.003	.000	4.1	.413	.000
16...	--	--	--	--	--	--	--	--	--	--	--
16...	--	.01	--	--	--	.015	.013	.005	--	--	--
30...	--	.01	--	--	--	.005	.002	.002	2.5	.390	.000
30...	--	.00	--	--	--	.005	.005	.001	1.3	.403	.000
30...	--	--	--	--	--	--	--	--	--	.654	.000
30...	--	.02	--	--	--	--	.004	.003	11	--	--
JUN											
13...	--	.01	.49	.50	.56	.004	.001	.001	2.0	--	--
13...	--	.02	.58	.60	.67	.004	.001	.001	1.8	.276	.000
13...	--	--	--	--	--	--	--	--	--	--	--
13...	--	.01	.43	.44	.68	.005	.003	.001	1.8	--	--
29...	.03	.00	.08	.08	.12	.006	--	--	3.0	.057	.000
29...	.01	.01	.17	.18	.24	.005	.005	.002	2.0	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
29...	.18	.00	.09	.09	.33	.010	--	--	2.5	.227	.000
JUL											
10...	--	.01	.08	.09	.15	.004	.003	.000	3.9	.167	.023
10...	--	.02	.14	.16	.23	.004	.003	.000	2.1	.372	.028
10...	--	--	--	--	--	--	--	--	--	.223	.014
10...	--	.02	.12	.14	.33	.005	.003	.002	1.6	--	--
24...	--	.00	.09	.09	.10	.002	--	--	3.1	.713	.048
24...	--	.01	.20	.21	.22	.005	.005	.005	2.3	.441	.048
24...	--	--	--	--	--	--	--	--	--	--	--
24...	--	.01	.09	.10	.26	.005	.005	.005	1.6	--	--
AUG											
07...	--	.01	.03	.04	.06	.000	.000	.001	3.3	.354	.042
07...	--	.00	.01	.01	.01	.000	.000	.001	2.3	.460	.021
07...	--	--	--	--	--	--	--	--	--	.354	.008
07...	--	.00	.06	.06	.23	.003	.004	.001	2.7	--	--
23...	--	.01	.14	.15	.15	.006	.002	.000	4.4	.051	.000
23...	--	.03	.08	.11	.11	.006	.000	.000	5.3	.186	.017
23...	--	--	--	--	--	--	--	--	--	.034	.008
23...	--	.11	.09	.20	.35	.013	.012	.000	8.0	--	--
SEP											
06...	--	.16	.20	.36	.36	.000	.000	.000	3.3	.141	.000
06...	--	.01	.11	.12	.22	.000	.000	.000	2.8	.322	.018
06...	--	--	--	--	--	--	--	--	--	.201	.000
06...	--	.01	.16	.17	.34	.007	.009	.001	1.9	--	--
20...	--	.01	.18	.19	.27	.004	.001	.002	1.9	.125	--
20...	--	.01	.21	.22	.24	.003	.000	.001	2.2	.146	--
20...	--	--	--	--	--	--	--	--	--	.456	--
20...	--	.02	.25	.27	.50	.014	.008	.006	4.9	--	--

12301919 LAKE KOOCANUSA AT FOREBAY, NEAR LIBBY, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	SAMP-LING DEPTH (FT) (00003)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)
OCT										
12...	1115	1.5	100	11	29	7.7	1.4	.1	.4	18
12...	1145	10	100	11	29	7.7	1.7	.1	.4	15
12...	1245	305	150	30	41	12	4.0	.1	.7	29
JUN										
29...	1230	1.5	120	29	33	9.0	3.0	.1	.5	21
29...	1300	10	110	21	30	8.8	2.9	.1	.5	18
29...	1400	290	160	38	42	13	5.0	.2	.7	30

DATE	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	ALUM-INUM, TOTAL RECOV-ERABLE (UG/L AS AL) (01105)	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)
OCT									
12...	1.3	.2	116	.16	60	0	0	1	110
12...	1.4	.2	113	.15	60	10	0	0	40
12...	3.4	.2	169	.23	50	0	1	1	40
JUN									
29...	2.7	.1	128	.17	20	40	0	0	10
29...	1.6	.1	121	.16	70	0	0	1	50
29...	4.5	.2	175	.24	230	0	1	1	70

DATE	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MOLYB-DENUM, TOTAL RECOV-ERABLE (UG/L AS MO) (01062)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO) (01060)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
OCT									
12...	50	4	[illegible]	10	10	4	0	10	10
12...	20	3	0	10	10	4	0	10	10
12...	30	3	3	30	10	4	0	10	10
JUN									
29...	10	25	10	0	0	0	0	20	0
29...	0	23	15	0	<1	0	<10	20	<3
29...	20	35	14	50	5	0	0	40	6

12301919 LAKE KOOCANUSA AT FOREBAY, NEAR LIBBY, MT--Continued

SELECTED VERTICAL PROFILES

MAY 30

DEPTH (FT)	TEMPERATURE (DEG C)	SPECIFIC CONDUCTANCE (MICROMHOS)	DISSOLVED OXYGEN (MG/L)	PH (UNITS)	TRANSMISSIBILITY (PERCENT)
0	10.9	270	10.0	8.7	
1	10.5	272	10.0	8.7	15
3	10.4	274	10.0	8.7	12
5	10.2	274	10.0	8.7	11
10	10.1	274	10.1	8.7	11
15	10.2	274	10.1	8.7	13
20	10.1	274	10.1	8.7	13
25	10.0	273	10.1	8.7	13
30	10.0	273	10.1	8.7	13
35	10.0	272	10.2	8.7	13
40	10.0	271	10.2	8.7	13
45	9.9	269	10.3	8.7	15
55	9.3	270	10.4	8.6	18
65	8.4	271	10.5	8.6	23
75	8.0	271	10.7	8.6	21
85	7.4	271	10.9	8.6	30
95	6.7	270	10.9	8.5	35
105	5.3	274	10.9	8.4	39
115	4.7	277	10.9	8.4	43
125	4.3	279	10.8	8.4	48
135	3.8	292	10.2	8.3	45
145	3.4	300	9.6	8.2	41
155	3.2	308	9.3	8.2	37
165	3.1	310	9.1	8.2	33
175	2.9	326	8.4	8.1	30
185	2.8	329	8.0	8.1	24
195	2.7	344	7.0	8.0	23
210	2.6	351	6.5	8.0	21
225	2.6	359	5.9	8.0	21
240	2.6	361	5.6	8.0	20
252	2.6	361	5.6	8.0	20
262	2.6	362	5.6	8.0	20

AUG. 23

DEPTH (FT)	TEMPERATURE (DEG C)	SPECIFIC CONDUCTANCE (MICROMHOS)	DISSOLVED OXYGEN (MG/L)	PH (UNITS)	TRANSMISSIBILITY (PERCENT)
0	20.6	221	8.7	8.8	
1	20.6	222	8.7	8.8	35
3	20.6	222	8.7	8.8	35
5	20.5	221	8.8	8.8	33
10	20.5	222	8.8	8.7	33
15	20.3	221	9.0	8.8	32
20	20.2	220	9.2	8.7	30
25	19.5	219	9.1	8.7	25
30	19.3	219	9.0	8.6	25
35	18.9	214	9.1	8.5	24
40	17.6	215	8.9	8.4	27
45	16.2	218	8.0	8.1	32
50	15.3	215	8.0	8.1	37
55	14.5	215	7.9	8.1	35
60	14.0	218	8.0	8.1	33
65	13.7	218	8.1	8.1	33
70	13.1	222	8.3	8.1	33
75	12.7	222	8.4	8.1	33
85	12.3	224	8.6	8.2	30
95	11.3	233	9.0	8.2	33
105	10.4	239	9.3	8.1	33
110	9.8	245	9.3	8.1	33
115	9.3	251	9.6	8.2	33
125	8.7	252	10.0	8.2	33
135	7.9	254	10.3	8.2	32
145	7.3	257	10.5	8.2	33
155	6.7	259	10.4	8.2	33
165	6.1	257	10.6	8.2	33
170	5.6	260	10.5	8.2	33
175	4.9	262	10.8	8.1	35
185	4.5	263	10.5	8.1	35
195	3.9	274	9.7	7.9	35
210	3.6	283	9.0	7.9	32
225	3.6	286	8.6	7.9	30
240	3.4	289	8.3	7.8	27
255	3.4	292	7.9	7.8	27
270	3.3	295	7.6	7.8	27
285	3.2	300	7.1	7.8	25
300	3.2	302	6.6	7.8	25
310	3.3	308	5.9	7.8	20

PRIMARY PRODUCTIVITY IN THE EUPHOTIC ZONE

DATE	PRIMARY PRODUCTIVITY (MG C/M^2/DAY)
OCT.	
12. . .	170
25. . .	130
MAY	
16. . .	69
30. . .	62
JUNE	
13. . .	110
29. . .	150
JULY	
10. . .	180
24. . .	370
AUG.	
7. . .	200
23. . .	180
SEPT.	
6. . .	180
20. . .	100

(carbon-14, light and dark bottle method)

12301920 LAKE KOOCANUSA NEAR LIBBY, MT

LOCATION.--Lat 48°24'38", long 115°18'47", in NW¼ sec.33, T.31 N., R.29 W., Lincoln County, Hydrologic Unit 17010101, Kootenai National Forest, in block 18 of Libby Dam on Kootenai River, 11 mi (18 km) east of Libby, and at mile 221.9 (357.0 km).

DRAINAGE AREA.--8,985 mi² (23,271 km²), approximately.

PERIOD OF RECORD.--March 1972 to current year.

GAGE.--Water-stage recorder. Datum of gage is at National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Prior to July 2, 1973, nonrecording gage on upstream face of dam at same datum.

REMARKS.--Reservoir and flow completely controlled by gravity type dam with tainter gated spillway; construction began in 1967; completed in 1973. Storage began Mar. 21, 1972. Usable capacity, 5,694,000 acre-ft (7.02 km³) between elevation 2,202.0 ft (671.17 m), bottom of sluice gate, and 2,459 ft (749.5 m), controlled spillway elevation. Dead storage, 115,400 acre-ft (142 hm³) below elevation 2,202.0 ft (671.17 m). Minimum operating level, 760,100 acre-ft (937 hm³), elevation 2,287.0 (697.08 m) for on-site power generation. Figures given herein represent usable contents. Water is used for power production, flood control, irrigation, and recreation.

COOPERATION.--Capacity table and elevations furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 5,698,000 acre-ft (7.03 km³) Aug. 6, 1976, elevation, 2,459.10 ft (749.534 m); minimum observed since normal low operating level reached in May 1972, 131,900 acre-ft (163 hm³) Dec. 16-21, 1972, elevation, 2,226.5 ft (678.64 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 5,516,000 acre-ft (6.80 km³) Oct. 1, elevation, 2,455.13 ft (748.324 m); minimum, 2,287,000 acre-ft (2.82 km³) Apr. 9, elevation, 2,363.97 ft (720.538 m).

Capacity table (elevation, in feet, and contents, in acre-ft)

2,360	2,185,000	2,420	4,059,000
2,380	2,729,000	2,440	4,853,000
2,400	3,353,000	2,460	5,740,000

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2455.13	2445.82	2424.89	2397.00	2369.16	2365.50	2364.35	2367.74	2406.82	2439.55	2450.74	2451.19
2	2454.88	2445.21	2424.00	2395.93	2368.25	2365.42	2364.31	2368.49	2407.87	2440.30	2450.78	2451.28
3	2454.63	2444.85	2423.09	2394.86	2368.16	2365.33	2364.22	2369.16	2409.27	2440.94	2450.82	2451.34
4	2454.34	2444.07	2422.27	2394.01	2368.05	2365.23	2364.11	2369.84	2411.06	2441.45	2451.02	2451.36
5	2454.15	2443.40	2421.41	2393.19	2367.19	2365.15	2364.07	2370.85	2413.05	2441.92	2451.12	2451.27
6	2453.83	2442.76	2420.46	2392.03	2367.11	2365.12	2364.01	2372.03	2415.12	2442.48	2451.15	2451.11
7	2453.59	2442.08	2419.51	2391.11	2367.03	2365.12	2364.00	2373.21	2416.89	2443.05	2451.15	2450.86
8	2453.29	2441.57	2418.52	2390.32	2366.96	2365.11	2363.98	2374.16	2418.20	2443.67	2451.14	2450.74
9	2453.00	2440.94	2417.59	2389.53	2366.87	2365.11	2363.97	2374.96	2419.25	2444.20	2451.13	2450.70
10	2452.65	2440.21	2417.41	2388.73	2366.83	2365.09	2364.04	2375.70	2420.34	2444.72	2451.09	2450.59
11	2452.46	2439.53	2416.85	2387.91	2366.74	2365.05	2364.07	2376.40	2421.38	2445.21	2451.35	2450.42
12	2452.27	2438.78	2415.91	2387.11	2366.71	2365.01	2364.09	2377.15	2422.85	2445.75	2451.36	2450.26
13	2452.10	2438.05	2414.66	2386.33	2366.73	2364.96	2364.14	2377.90	2424.28	2446.16	2451.32	2450.10
14	2451.92	2437.29	2414.10	2385.25	2366.73	2364.93	2364.24	2378.71	2425.70	2446.45	2451.30	2449.90
15	2451.73	2436.50	2413.15	2384.10	2366.63	2364.89	2364.35	2379.62	2426.80	2446.81	2451.29	2449.75
16	2451.48	2435.95	2412.20	2382.93	2366.55	2364.87	2364.50	2380.70	2427.70	2447.12	2451.28	2449.60
17	2451.33	2435.47	2411.60	2381.84	2366.47	2364.86	2364.56	2382.03	2428.50	2447.43	2451.18	2449.47
18	2451.24	2434.93	2410.69	2380.67	2366.39	2364.87	2364.63	2383.46	2429.20	2447.75	2451.27	2449.25
19	2451.06	2434.14	2409.94	2379.95	2366.31	2364.84	2364.84	2384.65	2430.10	2448.11	2451.42	2449.07
20	2450.93	2433.34	2408.89	2379.85	2366.29	2364.82	2364.96	2385.79	2431.00	2448.41	2451.40	2448.87
21	2450.70	2432.49	2407.94	2379.85	2366.20	2364.79	2365.09	2386.95	2431.93	2448.78	2451.36	2448.67
22	2450.54	2431.62	2407.08	2379.15	2366.11	2364.75	2365.23	2388.24	2432.78	2449.10	2451.34	2448.48
23	2450.42	2431.13	2406.04	2378.19	2366.00	2364.69	2365.31	2389.69	2433.55	2449.43	2451.33	2448.33
24	2450.10	2430.59	2405.07	2377.28	2365.91	2364.74	2365.41	2391.50	2434.32	2449.88	2451.29	2448.13
25	2449.70	2429.76	2404.11	2376.23	2365.82	2364.71	2365.48	2393.76	2435.08	2449.94	2451.30	2447.91
26	2449.30	2428.97	2403.11	2375.00	2365.72	2364.69	2365.62	2396.15	2435.74	2450.07	2451.36	2447.68
27	2448.77	2428.14	2402.41	2373.90	2365.67	2364.65	2365.81	2398.80	2436.46	2450.18	2451.36	2447.54
28	2448.22	2427.35	2401.35	2373.50	2365.57	2364.58	2366.07	2401.34	2437.25	2450.32	2451.30	2447.36
29	2447.64	2426.53	2400.29	2372.34	---	2364.52	2366.50	2403.26	2438.03	2450.61	2451.30	2447.13
30	2447.11	2425.76	2399.26	2371.15	---	2364.46	2367.04	2404.76	2438.79	2450.69	2451.17	2446.96
31	2446.48	---	2398.14	2370.02	---	2364.44	---	2405.85	---	2450.71	2451.16	---
MAX	2455.13	2445.82	2424.89	2397.00	2369.16	2365.50	2367.04	2405.85	2438.79	2450.71	2451.42	2451.36
MIN	2446.48	2425.76	2398.14	2370.02	2365.57	2364.44	2363.97	2367.74	2406.82	2439.55	2450.74	2446.96
(†)	5,130	4,279	3,292	2,448	2,329	2,299	2,368	3,551	4,803	5,316	5,336	5,151
(††)	-400,000	-851,000	-987,000	-844,000	-119,000	-30,000	+69,000	+1,183M	+1,252M	+513,000	+20,000	-185,000

CAL YR 1978 ....†† +915,000
WAT YR 1979 ....†† -379,000

† Contents, in thousands of acre--feet, at end of month.
†† Change in contents, in acre-ft.

12301933 KOOTENAI RIVER BELOW LIBBY DAM, NEAR LIBBY, MT

LOCATION.--Lat 48°24'03", long 115°19'11", in SW¼SW¼SW¼ sec.33, T.31 N., R.29 W., Lincoln County, Hydrologic Unit 17010101, Kootenai National Forest, on right bank 0.7 mi (1.1 km) downstream from Libby Dam, 2.8 mi (4.5 km) upstream from Fisher River, 11 mi (18 km) east of Libby, and at mile 221.0 (335.6 km).

DRAINAGE AREA.--8,985 mi² (23,271 km²), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1971 to current year.

GAGE.--Water-stage recorder. Datum of gage is 2,100.00 ft (640.080 m) National Geodetic Vertical Datum of 1929 (U.S. Army Corps of Engineers bench mark). Prior to Feb. 13, 1974, nonrecording gage at site 0.4 mi (0.6 km) upstream at same datum.

REMARKS.--Water-discharge records excellent except those below 5,000 ft³/s (142 m³/s), which are good. Flow completely regulated by Lake Koocanusa since Mar. 21, 1972 (see preceding page). Diversions for irrigation of about 14,000 acres (57 km²), from tributaries above station in Canada and the United States.

AVERAGE DISCHARGE.--8 years, 11,360 ft³/s (321.7 m³/s) 17.16 in/yr (436 mm/yr), 8,230,000 acre-ft/yr (10.1 km³/yr), adjusted for change in contents in Lake Koocanusa since Mar. 21, 1972.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 47,200 ft³/s (1,340 m³/s) Aug. 5, 1974, gage height, 27.50 ft (8.382 m); minimum daily, 1,900 ft³/s (53.8 m³/s) Jan. 29, 1972.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 21,800 ft³/s (617 m³/s) Dec. 9, 11, gage height, 23.07 ft (7.032 m); minimum daily, 2,850 ft³/s (80.7 m³/s) May 14, 27, 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13900	19000	20900	20100	14500	3940	3940	2980	4010	2930	6440	6020
2	13900	18300	21000	20000	14500	3940	3920	2980	3880	2930	6410	3090
3	13900	19100	20800	19700	4210	3960	3940	3000	3880	2920	6390	3080
4	13900	19100	20600	15000	4000	4000	3940	3060	3940	2910	3200	6260
5	12100	19100	20900	15200	14400	3980	3940	3060	3940	2920	3000	7960
6	13900	19200	21100	19800	4130	4000	3960	3010	3940	2900	6220	8840
7	11300	19200	21300	16300	3920	3980	3940	3010	3940	2910	6380	11500
8	13900	19400	21400	14500	3900	3960	3960	3050	3890	2910	6440	6020
9	13900	19400	21600	14800	3940	3980	3960	2980	3000	2920	6490	5580
10	13600	19400	6060	14900	3880	3940	3960	2980	2960	2990	6430	8510
11	9800	19500	12700	14900	3860	3940	3920	2980	4980	3000	3090	8540
12	10300	19500	21600	14400	3830	3940	3960	2920	4010	2950	3000	6980
13	10500	19600	21600	14800	3880	3960	3060	2890	3980	2930	6320	8540
14	9960	19700	18800	19400	3920	3940	3000	2850	3980	5760	6720	8340
15	9960	19800	21100	19300	3920	3940	3000	2890	3970	3000	6490	7780
16	11400	15800	21200	19200	3940	3940	3010	2900	3910	2930	6240	7200
17	8780	16500	15000	19000	3940	3920	3000	2950	3900	2930	6300	8380
18	7690	14100	16400	19000	3980	3960	3000	3030	4000	2900	3060	8380
19	8810	20000	20900	13800	3940	4150	3000	3000	3950	2920	3040	8380
20	8640	20100	21100	4000	3980	4130	3010	2960	3940	2860	6200	8390
21	9990	20100	21100	3940	3980	4010	2980	2950	3980	2900	6260	8420
22	8270	19900	20600	12800	3940	3920	2980	2920	4000	2920	6290	8060
23	7850	14000	20700	16400	3920	3920	2980	2870	4000	2910	6370	7430
24	11700	15500	20400	16400	3960	3920	2960	2870	4000	2890	6560	8560
25	14400	20500	20300	17800	3940	3920	2980	2950	3960	6010	6130	8400
26	14600	20500	20100	18900	3960	3900	3000	2870	3960	6100	3060	8340
27	16900	20600	15800	18900	3940	4010	2980	2850	3930	6270	6230	7220
28	16900	20700	20100	8300	3920	3940	3000	2850	2980	3150	6280	8410
29	16900	20700	20200	18800	---	3940	2980	2980	2930	3010	6280	8000
30	16600	20900	20200	18700	---	3940	3000	2930	2900	5840	6260	7210
31	17500	---	20100	18400	---	3940	---	3000	---	6360	6210	---
TOTAL	381950	569200	605660	497440	142130	122860	101260	91520	114640	109780	173790	229820
MEAN	12320	18970	19540	16050	5076	3963	3375	2952	3821	3541	5606	7661
MAX	17500	20900	21600	20100	14500	4150	3960	3060	4980	6360	6720	11500
MIN	7690	14000	6060	3940	3830	3900	2960	2850	2900	2860	3000	3080
AC-FT	757600	1129000	1201000	986700	281900	243700	200800	181500	227400	217700	344700	455800
MEAN +	5,816	4,672	3,480	2,321	2,933	3,475	4,534	22,190	24,860	11,880	5,931	4,551
CFSM +	.65	.52	.39	.26	.33	.39	.50	2.47	2.77	1.32	.66	.51
IN +	.75	.58	.45	.30	.34	.45	.56	2.85	3.09	1.52	.76	.57
AC-FT+	357,600	278,000	214,000	142,700	162,900	213,700	269,800	1,364,500	1,479,400	730,700	364,700	270,800

OBSERVED

CAL YR 1978	TOTAL	3,695,670	MEAN	10,130	MAX	21,600	MIN	3,020	AC-FT	7,330,000
WTR YR 1979	TOTAL	3,140,050	MEAN	8,603	MAX	21,600	MIN	2,850	AC-FT	6,228,000

ADJUSTED

CAL YR 1978	TOTAL	4,156,843	MEAN	11,390	CFSM	1.27	IN	17.21	AC-FT	8,245,000
WTR YR 1979	TOTAL	2,948,726	MEAN	8,079	CFSM	.90	IN	12.21	AC-FT	5,849,000

+Adjusted for change in contents in Lake Koocanusa.

12301933 KOOTENAI RIVER BELOW LIBBY DAM, NEAR LIBBY, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1967 to current year.

REMARKS.--"Prior to March 25, 1974, at site, 3.2 mi (5.1 km) downstream."

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	ALKA-LINITY (MG/L AS CACO3) (00410)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)
OCT												
03...	1120	13900	2	208	7.9	8.0	12.2	8.7	85	90	4.6	.07
18...	1030	3740	0	213	8.3	10.0	11.8	9.8	98	94	3.8	.03
NOV												
03...	0800	19100	60	216	7.9	5.0	10.0	9.3	88	95	5.0	.10
27...	1030	20500	2	232	7.8	2.0	7.6	9.8	88	99	4.6	.08
DEC												
14...	1450	10800	2	239	7.8	-1.0	6.2	9.9	86	100	4.5	.09
JAN												
04...	1050	19900	0	253	8.2	-19.0	4.0	9.6	77	100	4.6	.09
19...	1005	19200	2	256	7.8	-9.0	1.7	11.8	90	110	3.9	.07
31...	1045	19000	--	258	7.7	-9.0	1.6	11.0	85	100	3.6	.05
FEB												
15...	1100	3920	2	273	7.8	-4.0	2.4	11.6	91	110	4.6	.10
27...	1115	3900	2	280	7.8	9.5	2.4	11.0	87	110	5.2	.12
MAR												
16...	0915	3960	60	287	7.8	6.0	2.3	11.2	90	107	5.2	.13
28...	1100	3920	1	295	7.7	1.5	2.4	11.5	92	120	4.4	.14
APR												
12...	0830	3920	1	290	7.9	7.0	2.4	11.4	90	117	4.8	.11
23...	1130	2980	51	305	7.9	7.5	3.4	12.6	102	110	4.4	.08
MAY												
09...	1540	2960	1	297	7.9	19.0	3.6	12.4	101	117	4.1	.08
JUN												
05...	0945	3940	61	274	8.7	16.5	9.0	11.9	112	100	3.6	.02
20...	1045	3940	1	251	8.2	15.5	11.5	10.6	98	150	3.7	.05
JUL												
05...	1130	2930	0	252	8.1	26.5	12.5	10.2	103	103	4.3	.08
23...	1145	2900	0	257	8.2	31.0	13.0	11.1	112	--	4.1	.05
AUG												
09...	0720	5260	0	234	8.1	15.5	14.2	9.5	99	95	4.0	.08
29...	1400	8240	0	235	8.4	28.5	15.5	9.0	98	96	3.8	.05
SEP												
13...	1045	11100	0	232	8.0	19.5	14.6	9.0	94	92	3.8	.05
27...	1045	4010	0	241	7.7	19.0	14.8	9.3	99	98	3.7	.04

12301933 KOOTENAI RIVER BELOW LIBBY DAM, NEAR LIBBY, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) (00631)	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITROGEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITROGEN, KJELDAHL, TOTAL (MG/L AS N) (00625)	NITROGEN, TOTAL (MG/L AS N) (00600)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)	PHOSPHORUS, DISSOLVED (MG/L AS P) (00666)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P) (00671)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CHLOR-A PHYTOPLANKTON CHROMO FLUOROM (UG/L) (70953)	CHLOR-B PHYTOPLANKTON CHROMO FLUOROM (UG/L) (70954)
OCT											
03...	.08	.00	--	--	--	.002	.000	.000	1.5	.598	.000
18...	--	.01	--	--	--	.002	.001	.000	1.8	--	--
NOV											
03...	--	.00	.17	.17	.27	.002	.002	.001	1.6	.479	.000
27...	--	.01	.12	.13	.21	.008	.004	.001	1.7	.768	.048
DEC											
14...	--	.01	.05	.06	.15	.004	.004	.002	1.3	.245	.000
JAN											
04...	--	.00	.13	.13	.22	.010	.006	.005	1.7	.409	.000
19...	--	.00	.11	.11	.18	.014	.010	.003	1.3	.360	.000
31...	.05	.02	.07	.09	.14	.006	.005	.004	1.2	.314	.000
FEB											
15...	--	.01	.00	.01	.11	.008	.005	.003	1.1	.140	.000
27...	--	.04	.02	.06	.18	.006	.005	.003	1.5	.192	.000
MAR											
16...	--	.01	.04	.05	.18	.004	.002	.001	1.6	1.24	.000
28...	--	.01	.06	.07	.21	.010	.007	.007	1.9	1.70	.048
APR											
12...	--	.01	.12	.13	.24	.009	.005	.004	1.8	.236	.000
23...	.12	.02	.11	.13	.21	.010	.004	.001	1.9	.471	.000
MAY											
09...	--	.00	.17	.17	.25	.007	.001	.001	1.8	.799	.000
JUN											
05...	.01	.06	--	--	--	.036	.004	.000	2.8	.430	.000
20...	--	.01	.00	.01	.06	.001	.001	.001	2.1	.000	.000
JUL											
05...	--	.06	.00	.04	.12	.009	.008	.000	2.1	.170	.000
23...	--	.01	.09	.10	.15	.002	.002	.000	2.0	.373	.024
AUG											
09...	--	.01	.08	.09	.15	.000	.004	.001	.7	.177	.000
29...	--	.01	.00	.01	.06	.012	.084	.010	4.1	.287	--
SEP											
13...	.09	.01	.37	.38	.43	.005	.003	.002	5.8	.195	.000
27...	--	.01	.27	.28	.32	.000	.000	.000	2.4	.125	.000

12301933 KOOTENAI RIVER BELOW LIBBY DAM, NEAR LIBBY, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
OCT										
03...	1120	110	20	31	8.0	1.9	.1	.4	17	2.0
JAN										
31...	1045	110	13	31	8.6	2.4	.1	.4	17	2.7
APR										
23...	1130	150	38	41	11	3.5	.1	.7	29	4.1
JUN										
05...	0945	130	28	35	9.9	3.0	.1	.8	25	3.5
SEP										
13...	1045	110	20	31	8.3	2.5	.1	.5	22	2.1

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	ALUM-INUM, TOTAL RECOV-ERABLE (UG/L AS AL) (01105)	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)
OCT									
03...	.1	--	--	--	50	10	0	1	90
JAN									
31...	.1	126	.17	6460	80	10	0	1	30
APR									
23...	.2	161	.22	1500	90	20	1	1	70
JUN									
05...	.2	139	.19	1480	90	20	1	0	90
SEP									
13...	.2	126	.17	3780	70	0	1	1	30

DATE	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MOLYB-DENUM, TOTAL RECOV-ERABLE (UG/L AS MO) (01062)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO) (01060)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
OCT									
03...	40	15	3	0	0	4	0	20	10
JAN									
31...	0	44	2	0	<1	0	1	10	<3
APR									
23...	10	--	--	10	0	0	0	50	10
JUN									
05...	0	15	0	0	10	0	0	10	10
SEP									
13...	30	6	9	0	1	0	<10	0	<3

12301933 KOOTENAI RIVER BELOW LIBBY DAM, NEAR LIBBY, MT--Continued

TURBIDITY (JTU), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1								---	---	---	1	---
2								---	2	1	---	1
3								2	---	---	1	---
4								---	2	2	---	---
5								3	---	---	2	1
6								---	3	2	2	---
7								4	---	---	---	---
8								---	2	2	---	1
9								3	---	---	1	---
10								---	1	2	---	---
11								3	---	---	---	1
12								---	2	2	1	---
13								2	---	---	---	---
14								---	2	2	---	1
15								4	---	---	2	---
16								---	2	2	---	---
17								2	---	---	---	1
18								---	2	2	2	---
19								4	---	---	---	---
20								---	2	2	---	1
21								3	---	---	2	---
22								---	3	2	---	---
23								4	---	---	---	1
24								---	2	1	1	---
25								2	---	---	---	---
26								---	4	2	---	1
27								3	---	---	1	---
28								---	3	2	---	---
29								3	---	---	---	1
30								---	2	1	1	---
31								3	---	---	---	---
MEAN								3	2	2	1	1

WTR YR 1978 MEAN 2 MAX 4 MIN 1

TURBIDITY (JTU), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	1	1	---	---	1	---	---	---	---	1	---
2	1	---	---	---	1	---	---	---	2	1	---	---
3	---	---	---	1	---	---	2	2	---	---	---	2
4	---	1	1	---	---	1	---	---	---	---	1	---
5	1	---	---	---	1	---	---	---	2	1	---	---
6	---	---	---	1	---	---	2	2	---	---	---	1
7	---	1	1	---	---	2	---	---	---	---	1	---
8	1	---	---	---	2	---	---	---	2	1	---	---
9	---	---	---	1	---	---	2	2	---	---	---	<1
10	---	1	1	---	---	2	---	---	---	---	1	---
11	1	---	---	---	1	---	---	---	2	1	---	---
12	---	---	---	2	---	---	2	2	---	---	---	1
13	1	1	1	---	---	2	---	---	---	---	1	---
14	---	---	---	---	2	---	---	---	2	1	---	---
15	---	---	---	2	---	---	1	2	---	---	---	1
16	---	1	1	---	---	2	---	---	---	---	1	---
17	1	---	---	---	1	---	---	---	3	1	---	---
18	---	---	---	1	---	---	2	2	---	---	---	1
19	---	2	1	---	---	2	---	---	---	---	2	---
20	1	---	---	---	2	---	---	---	2	1	---	---
21	---	---	---	1	---	---	2	2	---	---	---	<1
22	---	2	1	---	---	2	---	---	---	---	1	---
23	1	---	---	---	2	---	---	---	2	1	---	---
24	---	---	---	1	---	---	2	2	---	---	---	1
25	---	1	1	---	---	1	---	---	---	---	1	---
26	1	---	---	---	2	---	---	---	2	2	---	---
27	---	---	---	1	---	---	2	1	---	---	---	<1
28	---	1	1	---	---	2	---	---	---	---	1	---
29	1	---	---	---	---	---	---	---	2	2	---	---
30	---	---	---	1	---	---	2	3	---	---	---	1
31	---	---	1	---	---	2	---	---	---	---	1	---
MEAN	1	1	1	1	2	2	2	2	2	1	1	1

WTR YR 1979 MEAN 1 MAX 3 MIN 1

12302055 FISHER RIVER NEAR LIBBY, MT

LOCATION.--Lat 48°21'20", long 115°18'50", in NW¼NE¼NW¼ sec.21, T.30 N., R.29 W., Lincoln County, Hydrologic Unit 17010102, on left bank 0.8 mi (1.3 km) upstream from mouth and 11.4 mi (18.3 km) east of Libby.

DRAINAGE AREA.--838 mi² (2,170 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1967 to current year.

GAGE.--Water-stage recorder. Datum of gage is 2,134.10 ft (650.474 m) National Geodetic Vertical Datum of 1929 (U.S. Army Corps of Engineers bench mark).

REMARKS.--Water-discharge records good except those for winter period, which are poor. Diversions of about 700 acres (2.8 km²) above station.

AVERAGE DISCHARGE.--12 years, 511 ft³/s (14.47 m³/s), 8.28 in/yr (210 mm/yr), 370,200 acre-ft/yr (456 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,720 ft³/s (247 m³/s) Jan. 16, 1974, gage height, 9.29 ft (2.832 m); minimum, 29 ft³/s (0.82 m³/s) Jan. 2, 1977, gage height, 2.37 ft (0.722 m), result of freezeup.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of about May 22, 1948, reached a discharge of 6,560 ft³/s (186 m³/s), by slope-area measurement at site 0.5 mi (0.8 km) upstream.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,930 ft³/s (83.0 m³/s) May 6, gage height, 6.46 ft (1.969 m); minimum daily, 55 ft³/s (1.56 m³/s) Jan. 1.

DISCHARGE, STREAM (CUBIC FEET PER SECOND), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	123	107	119	55	73	162	577	2660	788	253	107	110
2	120	106	113	65	72	152	542	2410	795	286	105	103
3	119	110	111	80	70	135	513	2180	881	253	104	100
4	119	147	114	84	75	145	466	2200	912	224	102	105
5	118	175	105	82	85	152	481	2740	927	223	100	103
6	117	149	90	80	100	204	530	2890	927	220	98	99
7	117	139	80	76	95	377	638	2620	767	210	98	96
8	116	137	75	72	93	553	767	2120	675	201	94	93
9	115	145	80	70	90	502	881	1800	632	192	93	94
10	115	136	85	74	96	454	990	1560	620	184	91	97
11	112	95	95	76	100	444	1010	1470	607	178	91	96
12	111	105	105	80	110	475	950	1450	626	184	89	93
13	111	110	100	82	120	524	942	1480	614	178	87	92
14	111	120	95	80	117	553	942	1520	553	167	89	89
15	111	115	98	79	113	595	912	1620	491	162	98	88
16	111	120	100	78	110	638	904	1800	454	160	100	86
17	111	120	95	75	115	675	1030	1860	434	160	94	83
18	111	115	90	76	120	694	1320	1680	424	154	94	82
19	110	110	90	80	125	694	1320	1530	424	152	91	82
20	109	105	94	83	135	688	1210	1450	397	147	91	82
21	109	100	96	85	140	688	1120	1390	368	147	91	80
22	108	95	100	86	145	681	1080	1470	342	142	93	79
23	107	95	103	82	155	669	1040	1550	325	133	93	78
24	108	100	105	80	170	681	1010	1730	313	128	93	77
25	109	105	102	82	184	753	966	1630	301	126	96	77
26	107	110	100	85	190	774	998	1550	290	124	98	77
27	107	115	100	82	176	753	1140	1530	282	124	96	76
28	107	119	95	78	157	707	1430	1310	271	120	98	75
29	110	122	85	78	---	675	1790	1060	260	122	93	74
30	112	116	70	76	---	636	2260	912	250	118	91	73
31	109	---	60	74	---	607	---	830	---	111	104	---
TOTAL	3480	3543	2950	2415	3331	16442	29779	54022	15950	5288	2962	2639
MEAN	112	118	95.2	77.9	119	530	993	1743	532	171	95.5	88.0
MAX	123	175	119	86	190	774	2260	2890	927	286	107	110
MIN	107	95	60	55	70	135	461	830	250	111	87	73
CFSM	.13	.14	.11	.09	.14	.63	1.19	2.08	.64	.20	.11	.11
IN.	.15	.16	.13	.11	.15	.73	1.32	2.40	.71	.23	.13	.12
AC-FT	6900	7030	5850	4790	6610	32610	59070	107200	31640	10490	5880	5230

CAL YR 1978 TOTAL 148149 MEAN 406 MAX 2520 MIN 60 CFSM .48 IN 6.58 AC-FT 293900
WTR YR 1979 TOTAL 142801 MEAN 391 MAX 2890 MIN 55 CFSM .47 IN 6.34 AC-FT 283200

12302055 FISHER RIVER NEAR LIBBY, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1967 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: September 1967 to current year.

INSTRUMENTATION.--Temperature recorder since September 1967.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum, 26.0°C July 23, 1977; minimum, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum, 25.0°C July 22; minimum, 0.0°C on many days during November to March.

TURBIDITY (JTU), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1								---	---	---	2	---
2								---	10	3	---	2
3								20	---	---	2	---
4								---	10	2	---	---
5								10	---	---	2	1
6								---	15	2	1	---
7								8	---	---	---	---
8								---	10	2	---	2
9								8	---	---	1	---
10								---	10	2	---	---
11								20	---	---	---	1
12								---	9	2	1	---
13								10	---	---	---	---
14								---	6	2	---	1
15								45	---	---	2	---
16								---	8	2	---	---
17								20	---	---	---	1
18								---	10	2	2	---
19								20	---	---	---	---
20								---	4	2	---	2
21								20	---	---	2	---
22								---	7	2	---	---
23								15	---	---	---	1
24								---	4	2	2	---
25								15	---	---	---	---
26								---	5	1	---	2
27								10	---	---	1	---
28								---	8	2	---	1
29								10	---	---	---	---
30								---	3	2	1	---
31								9	---	---	---	---
MEAN								16	8	2	2	1

WTR YR 1978 MEAN 6 MAX 45 MIN 1

12302055 FISHER RIVER NEAR LIBBY, MT--Continued

TURBIDITY (JTU), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	1	2	---	---	15	---	---	---	---	1	---
2	2	---	---	---	2	---	---	---	7	2	---	2
3	---	---	---	2	---	---	10	35	---	---	---	1
4	---	3	2	---	---	6	---	---	---	---	1	---
5	1	---	---	---	3	---	---	---	8	2	---	---
6	---	---	---	2	---	---	9	45	---	---	---	1
7	---	2	2	---	---	55	---	---	---	---	1	---
8	1	---	---	---	2	---	---	---	5	1	---	---
9	---	---	---	2	---	---	25	25	---	---	---	<1
10	---	2	1	---	---	15	---	---	---	---	<1	---
11	1	---	---	---	1	---	---	---	5	1	---	---
12	---	---	---	2	---	---	15	20	---	---	---	<1
13	---	2	2	---	---	20	---	---	---	---	<1	---
14	1	---	---	---	9	---	---	---	4	2	---	---
15	---	---	---	2	---	---	8	20	---	---	---	2
16	---	1	1	---	---	25	---	---	---	---	1	---
17	1	---	---	---	7	---	---	---	4	1	---	---
18	---	---	---	3	---	---	40	20	---	---	---	1
19	---	1	5	---	---	20	---	---	---	---	1	---
20	1	---	---	---	8	---	---	---	3	1	---	---
21	---	---	---	1	---	---	15	25	---	---	---	2
22	---	3	2	---	---	15	---	---	---	---	2	---
23	1	---	---	---	5	---	---	---	---	1	---	---
24	---	---	---	3	---	---	8	25	---	---	---	1
25	---	3	2	---	---	15	---	---	---	---	1	---
26	1	---	---	---	10	---	---	---	3	2	---	---
27	---	---	---	2	---	---	15	20	---	---	---	1
28	---	2	1	---	---	15	---	---	---	---	1	---
29	1	---	---	---	---	---	---	---	3	1	---	---
30	---	---	---	2	---	---	75	7	---	---	---	1
31	---	---	1	---	---	15	---	---	---	---	1	---
MEAN	1	2	2	2	5	20	22	24	5	1	1	1

WTR YR 1979 MEAN 7 MAX 75 MIN 1

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	12.5	8.5	10.5	3.5	.5	2.0	.5	.0	.0	.0	.0	.0
2	12.0	7.0	9.5	3.0	.5	2.0	.5	.5	.5	.0	.0	.0
3	10.0	7.0	8.5	5.0	3.0	4.0	.5	.0	.5	.0	.0	.0
4	11.0	6.0	8.5	6.0	4.5	5.5	1.0	.0	.5	.0	.0	.0
5	11.0	6.0	8.5	4.0	2.0	3.0	.0	.0	.0	.0	.0	.0
6	10.5	6.0	8.0	3.5	1.5	2.5	.0	.0	.0	.0	.0	.0
7	11.0	6.5	8.5	6.0	3.5	4.5	.0	.0	.0	.0	.0	.0
8	11.5	7.0	9.5	6.5	5.0	6.0	.0	.0	.0	.0	.0	.0
9	12.0	7.0	9.5	4.5	1.5	3.0	.0	.0	.0	.0	.0	.0
10	10.0	8.5	9.5	1.0	.0	.0	.0	.0	.0	.0	.0	.0
11	11.0	8.0	9.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
12	10.0	6.0	8.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13	8.5	4.5	6.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
14	8.5	4.0	6.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
15	8.5	4.0	6.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
16	9.0	5.5	7.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
17	10.0	5.5	7.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
18	9.5	5.5	7.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
19	9.0	5.0	7.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
20	9.0	5.5	7.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
21	10.0	6.0	8.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
22	7.0	3.5	5.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
23	7.0	4.0	5.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
24	8.0	5.0	6.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
25	6.0	3.0	4.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
26	5.0	2.0	3.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
27	5.5	3.5	4.5	.5	.0	.0	.0	.0	.0	.0	.0	.0
28	6.5	4.5	5.5	.5	.0	.0	.0	.0	.0	.0	.0	.0
29	7.0	4.5	6.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
30	4.5	2.5	3.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
31	3.5	1.0	2.5	---	---	---	.0	.0	.0	.0	.0	.0
MONTH	12.5	1.0	7.0	6.5	.0	1.0	1.0	.0	.0	.0	.0	.0

12302055 FISHER RIVER NEAR LIBBY, MT--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	.0	.0	.0	.5	.0	.0	5.0	3.0	4.0	8.5	6.5	7.0
2	.0	.0	.0	.0	.0	.0	5.5	2.5	4.0	9.5	6.0	7.5
3	.0	.0	.0	.5	.0	.0	4.5	2.5	3.5	9.0	7.0	8.0
4	.0	.0	.0	1.5	.0	1.0	6.0	3.5	5.0	8.5	7.0	7.5
5	.0	.0	.0	3.5	1.5	2.5	8.5	3.5	6.0	7.5	6.5	7.0
6	.0	.0	.0	3.0	1.5	2.0	7.0	5.0	6.0	7.0	6.0	6.5
7	.0	.0	.0	3.0	1.5	2.0	8.0	5.0	6.5	8.0	5.5	7.0
8	.0	.0	.0	1.5	.5	1.0	7.0	4.5	6.0	8.0	6.5	7.0
9	.0	.0	.0	3.0	.5	1.5	6.5	5.5	6.0	9.5	6.0	7.5
10	.0	.0	.0	3.5	.5	2.0	6.0	4.5	5.0	9.5	7.0	8.0
11	.0	.0	.0	4.0	1.0	2.5	6.0	3.5	4.5	10.5	7.0	9.0
12	.0	.0	.0	5.0	2.5	3.5	6.5	4.5	5.5	9.5	7.5	8.5
13	.0	.0	.0	4.0	1.0	2.5	7.5	5.0	6.0	10.5	7.5	9.0
14	.0	.0	.0	4.0	1.0	2.5	7.0	5.0	6.0	11.0	7.0	9.0
15	.0	.0	.0	4.5	1.5	3.0	6.5	5.0	5.5	10.5	8.0	9.5
16	.0	.0	.0	4.0	3.0	3.5	7.5	5.0	6.5	10.0	7.5	9.0
17	.0	.0	.0	4.5	3.0	4.0	9.0	6.5	7.5	9.5	6.0	8.0
18	.0	.0	.0	4.5	2.0	3.5	7.0	5.0	6.0	11.0	7.5	9.0
19	.0	.0	.0	4.5	3.0	3.5	7.5	5.0	6.0	11.0	7.5	9.5
20	.5	.0	.0	5.0	2.0	3.5	6.5	5.0	6.0	11.5	7.5	9.5
21	.0	.0	.0	5.0	2.0	3.5	7.5	4.0	6.0	12.5	8.5	10.5
22	.0	.0	.0	5.0	2.5	3.5	7.0	5.5	6.0	12.5	8.5	11.0
23	.0	.0	.0	5.5	2.5	4.0	6.5	5.5	6.0	12.5	9.0	11.0
24	.5	.0	.0	6.5	3.0	5.0	7.5	5.5	6.5	12.5	9.5	10.5
25	.5	.0	.0	6.0	4.0	5.0	9.0	5.5	7.5	13.0	8.5	10.5
26	.5	.0	.0	4.5	3.0	3.5	10.0	6.5	8.0	12.5	9.5	11.5
27	.5	.0	.0	3.0	1.5	2.0	10.0	6.5	8.5	12.5	9.5	10.5
28	.5	.0	.0	4.0	1.0	2.5	10.0	7.0	8.5	11.5	8.0	9.5
29	---	---	---	6.0	3.0	4.5	9.5	7.0	8.5	10.5	7.5	9.0
30	---	---	---	5.5	3.5	4.5	9.0	6.5	8.0	11.0	8.5	9.5
31	---	---	---	6.0	3.0	4.0	---	---	---	12.5	9.0	11.0
MONTH	.5	.0	.0	6.5	.0	3.0	10.0	2.5	6.0	13.0	5.5	9.0
		JUNE			JULY			AUGUST			SEPTEMBER	
1	13.5	10.0	11.5	17.0	14.5	15.0	22.0	16.0	19.5	19.5	13.5	16.5
2	15.5	11.0	13.0	16.0	12.0	14.0	22.5	16.0	19.5	19.5	15.0	17.0
3	15.0	11.5	13.5	18.5	11.0	15.0	22.5	16.0	19.5	17.0	15.0	16.0
4	14.5	12.0	13.0	20.5	14.5	17.5	23.0	15.5	19.5	15.5	13.0	14.0
5	13.0	11.5	12.0	22.0	16.0	19.0	22.5	16.5	19.5	17.5	12.0	14.5
6	11.0	9.0	10.0	22.0	17.0	19.5	22.0	15.0	18.5	18.5	12.5	15.5
7	12.0	9.5	10.5	22.5	18.0	20.0	22.0	14.5	18.5	20.0	13.0	16.5
8	13.0	9.5	11.5	21.0	16.5	19.0	22.0	15.0	18.5	18.0	14.0	16.5
9	16.0	11.0	13.5	21.5	15.5	19.0	22.5	15.0	19.0	17.5	13.5	15.5
10	15.5	12.5	14.0	21.5	17.5	19.5	23.0	15.0	19.0	16.5	12.5	14.5
11	17.5	12.5	15.0	17.5	16.0	16.5	23.0	16.0	19.5	17.5	12.5	14.5
12	17.5	13.5	16.0	17.5	14.5	16.0	23.0	16.5	19.5	17.0	10.5	14.0
13	16.0	13.5	15.0	18.5	13.5	16.5	20.5	16.0	19.0	17.0	11.0	14.0
14	14.5	11.0	13.0	20.0	15.5	17.5	19.5	17.0	18.5	17.5	10.5	14.0
15	14.5	10.0	12.5	21.0	14.5	18.0	20.0	16.5	18.0	17.5	11.0	14.5
16	15.5	10.5	13.0	22.5	15.0	19.0	21.5	14.0	18.0	18.5	13.0	15.5
17	14.0	12.5	13.5	23.5	16.5	20.5	20.5	15.5	18.5	18.0	12.0	15.0
18	18.0	12.5	15.0	24.5	17.5	21.0	22.0	16.5	19.0	17.5	11.0	14.5
19	16.5	14.5	15.5	24.0	18.0	21.5	23.5	17.5	20.5	17.5	11.5	14.5
20	16.5	13.0	14.5	23.5	18.5	21.0	22.5	18.5	20.5	17.5	12.0	15.0
21	16.5	11.5	14.5	24.0	17.5	21.0	22.5	17.5	20.0	17.0	12.5	15.0
22	17.5	12.5	15.0	25.0	19.5	22.5	22.5	17.5	20.0	16.0	10.5	13.5
23	18.5	13.0	16.0	24.5	17.5	21.0	21.5	15.5	18.5	16.0	10.0	13.0
24	19.0	13.5	16.5	23.0	17.5	20.5	21.0	17.5	19.0	15.5	10.0	13.0
25	20.0	13.5	17.0	23.0	17.0	20.0	21.5	16.0	19.0	14.5	9.5	12.5
26	21.0	15.0	18.0	23.5	16.5	20.0	22.0	16.0	19.0	16.0	12.0	14.0
27	22.0	17.0	19.5	23.0	16.5	20.0	20.0	15.5	18.0	16.0	11.0	13.5
28	22.0	16.0	19.0	20.0	17.0	18.5	20.5	15.0	18.0	15.5	12.0	13.5
29	20.5	16.0	19.0	21.5	15.0	18.5	22.0	14.5	18.5	14.0	8.5	11.5
30	19.5	17.0	18.0	23.0	16.5	20.0	20.0	16.5	18.5	14.0	9.0	11.5
31	---	---	---	23.0	16.0	20.0	18.0	16.0	17.0	---	---	---
MONTH	22.0	9.0	14.5	25.0	11.0	19.0	23.5	14.0	19.0	20.0	8.5	14.5
YEAR	25.0	.0	8.0									

12303000 KOOTENAI RIVER AT LIBBY, MT

LOCATION.--Lat 48°24'03", long 115°33'08", in SW¼SE¼SW¼ sec.34, T.31 N., R.31 W., Lincoln County, Hydrologic Unit 17010101, on right bank 1,800 ft (550 m) downstream from highway bridge at Libby, 0.8 mi (1.3 km) downstream from Libby Creek, and at mile 204.3 (328.7 km).

DRAINAGE AREA.--10,240 mi^2 (26,520 km^2), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1910 to current year. Monthly discharge only for some periods, published in WSP 1316.

REVISED RECORDS.--WSP 1042: 1933. WSP 1246: 1912(M), 1915(M), 1916, 1918-19(M), 1924-27(M).

GAGE.--Water-stage recorder. Datum of gage is 2,041.54 ft (622.261 m), National Geodetic Vertical Datum of 1929. Prior to Apr. 28, 1931, nonrecording gages at site 1,800 ft (550 m) upstream at different datum.

REMARKS.--Records excellent except for those below 10,000 ft^3/s (283 m^3/s) which are good. Flow regulated by Lake Koocanusa since Mar. 21, 1972 (see p. 655). Diversions for irrigation of about 14,500 acres (58.7 km^2) from tributaries above station in Canada and the United States. Several observations of water temperature were made during the year and are available in files of Helena district office.

AVERAGE DISCHARGE.--69 years, 12,140 ft^3/s (343.8 m^3/s), 16.10 in/yr (409 mm/yr), 8,795,000 acre-ft/yr (10.8 km^3/yr), adjusted for change in contents in Lake Koocanusa since Mar. 21 , 1972.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 121,000 ft^3/s (3,340 m^3/s) June 21, 1916, gage height, 20.7 ft (6.31 m), present datum, derived from gage-relation study; minimum observed, 895 ft^3/s (25.3 m^3/s) Jan. 11, 1930 (result of discharge measurement).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 22,700 ft^3/s (643 m^3/s) Dec. 9, gage height, 7.36 ft (2.243 m); minimum daily, 3,110 ft^3/s (88.1 m^3/s) July 20.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14400	20400	21900	20900	14900	4130	4750	7690	5220	3510	6840	6540
2	14400	19800	21900	20800	14800	4130	4680	7170	5450	3570	6740	4350
3	14500	20400	21800	20800	6130	4140	4650	6800	5810	3430	6740	3360
4	14500	20600	21400	15600	4160	4200	4590	6970	6000	3360	4520	5720
5	12600	20600	21800	15500	13100	4220	4610	8330	6010	3350	3270	7780
6	14500	20700	22000	20400	5880	4310	4700	8190	6040	3340	5560	8210
7	11700	20600	22200	19700	4070	4700	4910	7400	5440	3330	6700	12500
8	14500	20800	22300	18200	4040	5040	5150	6640	5120	3300	6760	6310
9	14500	20800	22600	15200	4070	4860	5340	6090	4450	3270	6920	5720
10	14500	20800	8000	15300	4060	4710	5490	5640	4230	3260	6550	7950
11	11000	20800	11500	15300	4030	4640	5440	5490	6270	3240	4260	6470
12	10500	20800	22500	14600	4040	4680	5370	5420	5380	3250	3270	6460
13	11000	20900	22400	15100	4180	4770	4630	5540	5390	3220	5500	8490
14	9900	21000	19700	20000	4300	4790	4420	5590	5190	6010	6550	8480
15	10300	21100	21800	19900	4310	4850	4370	5840	4960	3290	6530	7910
16	11900	17600	22000	19800	4230	4930	4370	6270	4830	3210	6630	7340
17	9170	17600	18100	19600	4190	4980	4600	6390	4730	3190	6590	8500
18	8030	14500	14900	19600	4210	5000	5080	6090	4790	3160	4410	8500
19	9210	20900	21600	16400	4170	5230	5060	5840	4860	3170	3270	8470
20	8900	21000	21800	4220	4180	5180	4880	5590	4760	3110	5560	8520
21	10100	21000	21800	4140	4190	5110	4710	5540	4680	3140	6520	6580
22	9850	20800	21400	11100	4130	4960	4610	5850	4660	3160	6510	8170
23	6870	16300	21400	16900	4110	4940	4560	6070	4620	3140	6520	7360
24	12000	14600	21200	16900	4130	5000	4500	6440	4590	3130	6640	8890
25	14500	21300	21100	18100	4120	5150	4450	6270	4550	5380	6530	8540
26	14600	21400	20900	19400	4160	5160	4530	6160	4540	6280	4300	8550
27	17600	21500	16600	19500	4150	5210	4800	6120	4510	6450	5500	7350
28	18000	21600	20800	8920	4140	5030	5390	5410	3760	4180	6620	8490
29	18200	21600	20900	18900	---	4880	6140	4910	3510	3280	6610	8160
30	18100	21800	20900	19200	---	4870	7050	4540	3430	5130	6640	7360
31	19100	---	20900	19300	---	4820	---	4440	---	6730	6650	---
TOTAL	399130	603600	630100	519280	150180	148620	147830	190730	147780	118570	182270	233030
MEAN	12880	20120	20330	16750	5364	4794	4928	6153	4926	3825	5880	7768
MAX	19100	21800	22600	20900	14900	5230	7050	8330	6270	6730	6920	12500
MIN	6870	14500	8000	4140	4030	4130	4370	4440	3430	3110	3270	3360
AC-FT	791700	1197000	1250000	1030000	297900	294800	293200	378300	293100	235200	361500	462200
MEAN +	6,370	5,815	4,277	3,025	3,221	4,306	6,087	25,392	25,966	12,168	6,204	4,658
CFSM +	.62	.57	.42	.30	.31	.42	.59	2.48	2.54	1.19	.61	.45
IN +	.72	.63	.48	.34	.33	.48	.66	2.86	2.83	1.37	.70	.51
AC-FT+	391,700	346,000	263,000	186,000	178,900	264,800	362,200	1,561,300	1,545,100	748,200	381,500	277,200

OBSERVED

CAL YR 1978	TOTAL	4,028,220	MEAN	11,040	MAX	22,600	MIN	3,630	AC-FT	7,990,000
WTR YR 1979	TOTAL	3,471,120	MEAN	9,510	MAX	22,600	MIN	3,110	AC-FT	6,885,000

ADJUSTED

CAL YR 1978	TOTAL	4,489,487	MEAN	12,300	CFSM	1.20	IN	16.31	AC-FT	8,905,000
WTR YR 1979	TOTAL	3,280,011	MEAN	8,986	CFSM	.88	IN	11.91	AC-FT	6,506,000

+Adjusted for change in contents in Lake Koocanusa.

12303000 KOOTENAI RIVER AT LIBBY, MT--Continued

WATER-QUALITY RECORDS

LOCATION.--Water samples collected at Libby on highway bridge 1800 ft (550 m) upstream from gaging station, 0.5 mi (0.8 km) downstream from Libby Creek, and at mile 204.0 (328.2 km).

PERIOD OF RECORD.--Water years 1969-73, 1978 to September 1979 (discontinued).

PERIOD OF DAILY RECORD.--
TURBIDITY: May 1978 to September 1979 (discontinued).

REMARKS.--During periods of high runoff from Libby Creek samples were collected upstream from confluence of Libby Creek.

EXTREMES FOR PERIOD OF DAILY RECORD.--
TURBIDITY: Maximum, 50 JTU May 5, 1979; minimum, 1 JTU on many days each year.

EXTREMES FOR CURRENT YEAR.--
TURBIDITY: Maximum, 50 JTU May 5; minimum 1 JTU on many days during October to April, June to September.

TURBIDITY (JTU), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	1	1	1	1	1	1	1	1	1	1	1	1
2	1	1	2	1	1	1	1	2	2	1	2	2
3	1	1	1	1	2	1	1	1	1	1	2	1
4	1	1	1	1	1	1	2	1	1	1	1	1
5	1	1	1	1	1	1	1	1	1	1	1	2
6	1	1	1	1	1	1	1	1	1	1	2	3
7	1	1	1	1	1	1	1	1	1	1	3	4
8	1	1	1	1	1	1	1	1	2	2	8	10
9	1	1	2	1	1	1	1	1	2	1	6	5
10	1	1	2	1	1	1	2	2	1	1	4	3
11	1	1	1	1	1	1	2	1	1	1	2	3
12	1	1	1	1	1	1	2	2	1	1	3	3
13	1	1	1	1	1	1	2	1	1	2	5	4
14	1	1	1	1	1	1	1	1	2	2	3	4
15	1	1	1	1	1	1	1	1	2	1	3	3
16	1	1	1	1	1	1	2	2	2	2	4	4
17	1	1	1	1	1	1	2	1	1	2	4	4
18	1	1	1	1	1	1	1	1	1	1	3	3
19	1	1	1	1	1	1	1	1	1	2	4	4
20	1	1	2	1	1	1	1	1	1	2	4	4
21	1	1	2	1	1	1	1	1	2	1	4	4
22	1	1	2	2	1	1	2	1	1	1	3	3
23	1	2	2	2	1	1	1	1	1	1	3	3
24	1	2	2	1	1	1	1	1	1	1	4	4
25	2	1	1	1	1	1	1	2	2	1	2	3
26	1	1	1	1	1	1	2	2	1	2	4	4
27	1	2	1	1	2	1	1	1	1	2	2	3
28	1	1	1	1	1	1	1	1	1	1	4	3
29	1	1	2	1	1	2	2	1	---	---	3	4
30	1	1	1	1	2	1	1	1	---	---	3	3
31	1	1	---	---	1	1	2	1	---	---	4	3
MEAN	1	1	1	1	1	1	1	1	1	1	3	3

12303000 KOOTENAI RIVER AT LIBBY, MT--Continued

WATER-QUALITY RECORDS

TURBIDITY (JTU), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	1	2	35	40	4	3	1	1	1	1	1	1
2	3	3	30	25	3	4	1	2	2	2	1	1
3	3	3	20	20	2	2	2	1	2	2	1	1
4	3	3	15	15	3	4	2	1	2	2	1	2
5	3	2	50	45	3	5	2	2	1	1	1	2
6	2	3	25	20	4	4	2	2	2	2	1	2
7	3	3	20	20	3	3	1	1	1	2	1	1
8	3	3	20	20	3	3	1	1	2	1	2	1
9	3	3	20	20	3	3	1	2	1	1	<1	1
10	4	5	10	10	1	1	1	1	1	1	2	1
11	5	4	6	8	30	3	1	2	1	1	2	1
12	4	4	5	7	3	3	1	1	<1	1	1	1
13	4	4	4	4	2	2	2	2	1	1	2	2
14	3	4	5	6	3	3	2	7	1	2	1	1
15	2	3	6	6	3	3	1	1	2	1	1	1
16	3	4	7	9	3	2	---	1	1	2	<1	<1
17	3	3	8	7	2	2	1	2	1	1	1	1
18	6	15	6	6	3	3	2	1	1	1	<1	1
19	8	7	6	5	4	4	1	1	1	1	2	1
20	6	6	3	7	2	2	2	1	1	2	1	1
21	5	5	5	5	2	2	1	1	2	2	1	<1
22	2	3	8	5	2	2	1	1	2	1	1	1
23	3	3	7	8	2	2	1	1	1	1	<1	<1
24	3	4	8	8	1	1	2	1	1	1	1	<1
25	4	3	6	7	3	3	1	3	1	1	1	1
26	3	4	7	7	2	2	2	3	1	1	1	<1
27	4	5	3	4	2	2	3	3	1	2	<1	1
28	6	9	4	5	2	2	2	2	1	2	<1	<1
29	7	15	5	4	2	2	---	---	1	1	1	<1
30	35	40	3	3	2	2	2	2	1	1	<1	<1
31	---	---	3	3	---	---	2	2	1	1	---	---
MEAN	5	6	10	10	3	3	2	2	1	1	1	1
YEAR	3	3										

12303100 FLOWER CREEK NEAR LIBBY, MT

LOCATION.--Lat 48°20'41", long 115°36'20", in NW¼SE¼SE¼ sec.19, T.30 N., R.31 W., Lincoln County, Hydrologic Unit 17010101, Kootenai National Forest, on left bank 30 ft (9 m) downstream from road bridge, 0.3 mi (0.5 km) upstream from South Fork, 1.0 mi (1.6 km) upstream from reservoir, 4.0 mi (6.4 km) southwest of Libby, and 4.5 mi (7.2 km) upstream from mouth.

DRAINAGE AREA.--11.1 mi^2 (28.7 km^2).

PERIOD OF RECORD.--September 1960 to current year.

REVISED RECORDS.--WDR MT-1972: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 2,866 ft (874 m), from topographic map.

REMARKS.--Records good except those for period of no gage-height record, Dec. 5 to Jan. 16, which are poor. No known regulation or diversion above station. Several observations of water temperature were made during the year and are available in files of Helena district office.

AVERAGE DISCHARGE.--19 years, 27.0 ft^3/s (0.765 m^3/s), 33.02 in/yr (839 mm/yr), 19,560 acre-ft/yr (24.1 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 709 ft^3/s (20.1 m^3/s) Jan. 16, 1974, gage height, 5.53 ft (1.686 m); maximum gage height, 6.10 ft (1.859 m) Jan. 15, 1974, (backwater from ice); minimum discharge, 3.4 ft^3/s (0.096 m^3/s) Feb. 7, 1979; minimum gage height, 1.35 ft (0.411 m) Jan. 11, 1975.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 172 ft^3/s (4.87 m^3/s) May 24, gage height, 3.31 ft (1.009 m), no peak above base of 200 ft^3/s (5.66 m^3/s); maximum gage height, 3.32 ft (1.012 m) Nov. 15 (backwater from ice); minimum discharge, 3.4 ft^3/s (0.096 m^3/s) Feb. 7, gage height, 1.40 ft (0.427 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.6	5.0	6.6	4.0	4.1	4.7	7.3	110	62	31	6.9	5.8
2	7.3	4.9	6.5	4.3	4.0	4.8	7.0	78	86	29	6.8	5.5
3	7.2	6.8	6.4	4.5	4.0	4.7	6.7	77	113	25	6.6	6.2
4	6.9	21	6.5	4.3	3.9	4.4	6.6	97	117	23	6.4	9.3
5	6.9	10	6.0	4.2	4.0	4.9	6.8	119	116	22	6.3	8.5
6	6.8	8.9	5.6	4.1	4.1	6.2	7.7	109	99	21	6.1	7.0
7	6.7	8.6	5.0	4.2	4.1	11	10	81	68	20	5.9	6.4
8	6.5	8.8	4.5	4.3	4.4	9.3	11	63	55	18	5.8	6.0
9	6.4	8.2	4.7	4.4	4.4	7.2	12	53	55	18	5.7	5.7
10	6.3	6.8	4.8	4.4	5.2	6.4	13	50	62	17	5.6	5.4
11	6.2	6.1	5.0	4.5	5.4	6.3	12	52	71	17	5.5	5.8
12	6.0	6.2	5.2	4.4	5.6	6.7	11	61	83	16	5.4	5.3
13	5.9	6.3	4.8	4.5	8.3	6.6	11	70	80	15	5.3	5.0
14	5.9	6.4	4.9	4.6	7.1	6.6	11	83	63	14	5.8	4.9
15	5.9	6.4	5.1	4.5	6.9	7.0	11	95	51	13	6.1	4.8
16	5.7	7.3	5.0	4.4	6.2	8.2	11	116	46	13	5.7	4.7
17	5.7	8.0	4.9	4.3	5.6	8.3	18	105	46	12	5.4	4.6
18	5.6	8.0	5.0	4.2	5.6	8.0	20	91	46	11	5.3	4.5
19	5.5	8.0	5.0	4.2	5.5	8.0	19	90	50	11	5.2	4.4
20	5.5	7.8	5.0	4.2	5.4	8.1	17	87	45	10	5.2	4.4
21	5.7	7.8	5.1	4.5	5.1	8.3	16	97	41	10	5.7	4.3
22	5.4	7.5	5.2	4.7	5.0	8.3	16	118	36	9.5	5.5	4.2
23	5.3	7.3	5.3	4.6	4.9	8.2	15	137	34	9.1	5.7	4.1
24	5.9	7.1	5.4	4.5	4.8	8.9	15	158	33	8.7	7.3	4.1
25	5.3	6.9	5.6	4.4	4.7	10	15	147	32	8.5	6.0	4.0
26	5.1	6.8	5.4	4.3	4.9	10	19	146	31	8.3	5.8	3.9
27	5.1	6.5	5.2	4.2	4.9	9.5	27	139	30	8.3	7.3	3.9
28	5.1	6.6	4.5	4.2	4.9	8.8	44	97	29	8.0	5.8	3.9
29	5.7	6.4	4.2	4.2	---	8.3	69	70	27	7.7	5.5	3.8
30	5.3	6.3	3.9	4.1	---	7.9	98	57	26	7.4	5.4	3.8
31	4.9	---	3.8	4.1	---	7.7	---	56	---	7.1	6.0	---
TOTAL	185.3	228.7	160.1	134.3	143.2	233.3	563.1	2909	1733	448.6	183.0	154.2
MEAN	5.98	7.62	5.16	4.33	5.11	7.53	18.8	93.8	57.8	14.5	5.90	5.14
MAX	7.6	21	6.6	4.7	8.3	11	98	158	117	31	7.3	9.3
MIN	4.9	4.9	3.8	4.0	3.9	4.4	6.6	50	26	7.1	5.2	3.8
CFSM	.54	.69	.47	.39	.46	.68	1.69	8.45	5.21	1.31	.53	.46
IN.	.62	.77	.54	.45	.48	.78	1.89	9.75	5.81	1.50	.61	.52
AC-FT	368	454	318	266	284	463	1120	5770	3440	890	363	306

CAL YR 1978 TOTAL 8984.5 MEAN 24.6 MAX 159 MIN 3.8 CFSM 2.22 IN 30.11 AC-FT 17820
WTR YR 1979 TOTAL 7075.8 MEAN 19.4 MAX 158 MIN 3.4 CFSM 1.75 IN 23.71 AC-FT 14030

12304500 YAAK RIVER NEAR TROY, MT

LOCATION.--Lat 48°33'43", long 115°58'09", in NE¼SE¼SE¼ sec.5, T.32 N., R.34 W., Lincoln County, Hydrologic Unit 17010103, Kootenai National Forest, on right bank 500 ft (150 m) upstream from bridge on U.S. Highway 2, 0.2 mi (0.3 km) upstream from mouth, and 7.7 mi (12.4 km) northwest of Troy.

DRAINAGE AREA.--766 mi² (1,984 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1910 to September 1916 (fragmentary record), March 1956 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,839.2 ft (560.59 m), National Geodetic Vertical Datum of 1929. Oct, 15, 1910, to Sept. 30, 1916, nonrecording gage at several sites within 11 mi (18 km) of present site at various datums.

REMARKS.--Water-discharge records good except those for winter period, which are poor. Diversions for irrigation of about 30 acres (0.12 km²) above station.

AVERAGE DISCHARGE.--23 years, 898 ft³/s (25.43 m³/s), 15.92 in/yr (404 mm/yr), 650,600 acre-ft/yr (802 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,100 ft³/s (343 m³/s) May 21, 1956, gage height, 9.70 ft (2.957 m), in gage well, 10.8 ft (3.29 m), from outside gage; minimum daily, 50 ft³/s (1.42 m³/s) Dec. 9, 1972.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in May to June 1948 reached a stage of 11.0 ft (3.35 m) from floodmarks; discharge, 12,500 ft³/s (354 m³/s). Flood in May 1954 reached a stage of 11.4 ft (3.47 m) from floodmarks; discharge, 13,400 ft³/s (379 m³/s).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,600 ft³/s (130 m³/s) May 6, gage height, 7.12 ft (2.170 m), no peaks above base of 5,000 ft³/s (142 m³/s); minimum daily, 65 ft³/s (1.84 m³/s) Dec. 31.

DISCHARGE, STREAM (CUBIC FEET PER SECOND), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	188	157	174	70	94	145	364	2860	1350	414	119	102
2	181	148	163	75	90	140	349	2430	1340	506	116	102
3	181	148	167	80	100	165	339	2510	1440	466	112	114
4	177	441	160	90	110	185	328	2810	1400	409	110	140
5	170	552	145	88	120	207	336	4100	1310	372	108	151
6	167	400	135	86	120	282	385	4380	1440	342	105	149
7	163	319	130	85	115	441	561	3590	1250	317	103	135
8	160	292	160	88	110	576	670	2950	1080	300	101	118
9	157	277	165	90	115	537	748	2480	994	289	99	111
10	154	207	170	95	125	441	804	2260	956	276	98	110
11	151	136	175	100	130	395	757	2130	919	261	96	109
12	148	136	160	105	140	359	692	2230	882	256	95	111
13	148	157	150	110	150	364	672	2330	834	260	94	105
14	148	148	165	105	140	369	675	2440	767	249	95	102
15	148	148	180	100	130	369	651	2600	705	235	102	98
16	148	212	175	95	125	405	640	2900	671	219	105	94
17	148	243	170	100	120	468	828	2870	650	207	104	91
18	145	234	170	102	130	473	1160	2670	627	195	99	89
19	142	190	175	105	128	462	1050	2550	601	185	94	88
20	142	165	180	110	126	446	936	2400	580	177	92	87
21	151	170	185	115	124	441	856	2460	549	176	96	85
22	163	175	180	112	122	431	831	2630	522	167	113	84
23	163	180	175	110	120	431	843	2830	497	161	117	83
24	163	185	170	108	130	452	842	3070	473	151	124	83
25	163	170	165	106	145	528	832	3020	449	147	125	82
26	157	175	150	104	160	532	968	2950	427	146	121	82
27	151	185	135	102	155	499	1240	2760	405	147	116	82
28	154	195	115	100	150	431	1700	2200	384	141	109	81
29	174	191	85	100	---	433	2220	1800	365	135	104	79
30	181	177	70	98	---	415	2740	1590	349	129	100	79
31	170	---	65	96	---	392	---	1460	---	124	102	---
TOTAL	4956	6513	4764	3030	3524	12214	26017	82240	24216	7559	3274	3026
MEAN	160	217	154	97.7	126	394	867	2653	807	244	106	101
MAX	188	552	185	115	160	576	2740	4380	1440	506	125	151
MIN	142	136	65	70	90	140	328	1460	349	124	92	79
CFSM	.21	.28	.20	.13	.16	.51	1.13	3.46	1.05	.32	.14	.13
IN.	.24	.32	.23	.15	.17	.59	1.26	3.99	1.18	.37	.16	.15
AC-FT	9830	12920	9450	6010	6990	24230	51600	163100	48030	14990	6490	6000

CAL YR 1978 TOTAL 304469 MEAN 834 MAX 5650 MIN 65 CFSM 1.09 IN 14.79 AC-FT 603900
WTR YR 1979 TOTAL 181333 MEAN 497 MAX 4380 MIN 65 CFSM .65 IN 8.81 AC-FT 359700

12304500 YAAK RIVER NEAR TROY, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Seasonally (spring, summer, fall) 1963-73, March 1975 to current year.

INSTRUMENTATION.--Temperature recorder since March 25, 1975.

REMARKS.--Prior to March 25, 1975 records furnished by Corps of Engineers, U.S. Army.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum, 26.0°C July 19, Aug. 1, 2, 10, 1979; minimum, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum, 26.0°C July 19, Aug. 1, 2, 10; minimum, 0.0°C on many days during November to March.

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	13.0	9.0	10.5	3.5	2.0	2.5	.0	.0	.0	.0	.0	.0
2	11.5	8.5	9.5	3.0	1.5	2.0	.0	.0	.0	.0	.0	.0
3	10.0	6.5	9.0	4.5	2.0	3.5	.0	.0	.0	.0	.0	.0
4	10.5	7.5	8.5	5.0	4.0	4.5	.0	.0	.0	.0	.0	.0
5	10.0	7.5	8.0	4.0	2.0	2.5	.0	.0	.0	.0	.0	.0
6	10.0	7.0	8.0	3.0	2.0	2.5	.0	.0	.0	.0	.0	.0
7	10.0	7.5	8.0	4.0	3.5	3.5	.0	.0	.0	.0	.0	.0
8	10.5	7.5	8.5	5.5	4.5	5.0	.0	.0	.0	.0	.0	.0
9	10.5	7.5	8.5	4.5	2.0	3.5	.0	.0	.0	.0	.0	.0
10	9.5	8.5	9.0	1.5	.5	.5	.0	.0	.0	.0	.0	.0
11	10.0	8.0	9.0	.5	.0	.5	.0	.0	.0	.0	.0	.0
12	9.0	6.5	7.5	.5	.0	.0	.0	.0	.0	.0	.0	.0
13	7.0	5.0	5.5	.5	.0	.0	.0	.0	.0	.0	.0	.0
14	7.0	4.5	5.5	.5	.0	.0	.0	.0	.0	.0	.0	.0
15	7.5	5.0	6.0	.5	.0	.0	.0	.0	.0	.0	.0	.0
16	8.0	5.5	6.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
17	9.0	6.5	7.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
18	8.5	6.5	7.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
19	8.5	6.0	7.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
20	8.0	6.0	7.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
21	8.5	6.5	7.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
22	6.0	5.0	5.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
23	6.0	4.5	5.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
24	7.5	5.0	6.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
25	5.0	3.5	4.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
26	4.5	2.5	3.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
27	5.0	3.0	4.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
28	6.0	4.5	5.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
29	6.0	5.0	5.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
30	5.0	3.5	4.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
31	4.0	2.5	3.5	---	---	---	.0	.0	.0	.0	.0	.0
MONTH	13.0	2.5	7.0	5.5	.0	1.0	.0	.0	.0	.0	.0	.0

12304500 YAAK RIVER NEAR TROY, MT--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	.0	.0	.0	.0	.0	.0	3.5	1.0	2.5	5.5	4.0	5.0
2	.0	.0	.0	.0	.0	.0	3.5	2.0	3.0	7.5	4.0	5.5
3	.0	.0	.0	.0	.0	.0	3.5	1.5	2.5	7.0	4.5	5.5
4	.0	.0	.0	.0	.0	.0	4.5	3.0	4.0	6.0	4.5	5.0
5	.0	.0	.0	.0	.0	.0	7.0	3.5	5.0	5.0	4.0	4.5
6	.0	.0	.0	.0	.0	.0	7.0	4.5	5.5	5.0	4.0	4.5
7	.0	.0	.0	.0	.0	.0	7.0	4.5	6.0	6.0	4.0	5.0
8	.0	.0	.0	.0	.0	.0	6.5	3.0	5.0	6.0	4.0	5.0
9	.0	.0	.0	.0	.0	.0	6.0	4.5	5.0	7.5	3.5	5.5
10	.0	.0	.0	.0	.0	.0	5.0	3.5	4.5	7.0	4.5	5.5
11	.0	.0	.0	.5	.0	.0	6.0	2.5	4.0	8.5	4.5	6.5
12	.0	.0	.0	2.0	.0	.5	5.5	2.5	4.0	7.5	5.0	6.5
13	.0	.0	.0	1.5	.0	.5	5.0	3.5	4.0	8.0	5.0	6.5
14	.0	.0	.0	2.5	.0	.5	5.5	3.0	4.5	8.5	5.0	7.0
15	.0	.0	.0	2.5	.0	1.0	5.5	3.0	4.5	7.5	5.5	6.5
16	.0	.0	.0	1.5	.5	1.0	6.5	4.0	5.0	8.0	5.5	6.5
17	.0	.0	.0	2.5	.5	1.0	6.0	4.5	5.0	7.5	4.5	6.0
18	.0	.0	.0	3.0	.0	1.5	5.5	3.0	4.5	8.0	5.5	7.0
19	.0	.0	.0	2.5	1.0	2.0	5.5	4.0	4.5	9.0	5.0	7.0
20	.0	.0	.0	3.5	.5	2.5	6.0	3.0	4.5	9.5	5.5	7.5
21	.0	.0	.0	3.5	.5	2.5	7.5	3.0	5.0	10.5	6.0	8.5
22	.0	.0	.0	4.0	1.0	3.0	6.5	3.5	5.5	11.0	6.5	9.0
23	.0	.0	.0	4.5	1.5	3.0	6.0	4.5	5.0	10.5	7.0	9.0
24	.0	.0	.0	6.0	2.0	4.0	7.0	4.0	5.5	10.5	7.5	9.0
25	.0	.0	.0	5.0	2.0	3.5	8.0	3.5	6.0	11.5	7.5	9.5
26	.0	.0	.0	4.0	2.5	3.0	9.0	4.5	6.5	11.0	7.5	9.5
27	.0	.0	.0	2.5	1.5	2.0	9.0	4.5	6.5	10.0	7.5	9.0
28	.0	.0	.0	2.5	.5	1.5	9.0	4.5	6.5	9.5	7.0	8.0
29	---	---	---	3.5	1.5	2.5	8.5	4.5	6.5	8.5	6.5	7.5
30	---	---	---	4.0	2.5	3.0	7.5	4.5	6.0	10.0	6.5	8.0
31	---	---	---	4.0	2.0	3.0	---	---	---	11.0	7.0	9.0
MONTH	.0	.0	.0	6.0	.0	1.5	9.0	1.0	5.0	11.5	3.5	7.0

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	12.0	8.0	10.0	16.0	14.0	15.0	26.0	17.5	21.5	21.0	16.0	18.0
2	14.5	9.0	11.5	15.0	12.5	13.5	26.0	18.5	21.5	21.0	16.5	18.5
3	14.5	9.5	12.0	17.5	11.5	14.5	25.5	18.5	21.5	18.5	17.0	18.0
4	13.0	11.0	11.5	19.5	14.0	17.0	25.5	16.0	21.5	18.0	15.5	16.0
5	12.5	10.5	11.0	21.0	17.0	19.5	25.5	18.5	21.5	19.0	14.5	16.0
6	11.0	9.0	10.0	22.0	18.0	20.5	24.0	17.0	20.0	20.5	16.0	17.5
7	10.5	8.5	9.5	22.0	19.0	20.5	25.0	17.0	20.0	21.5	16.0	18.0
8	12.0	7.5	10.0	21.5	18.0	20.0	24.5	17.0	20.5	19.5	16.0	17.5
9	15.0	9.5	12.0	22.0	17.5	20.0	25.5	17.5	20.5	18.0	15.5	16.5
10	15.0	10.5	12.5	20.5	18.0	20.0	26.0	17.5	21.0	18.5	13.5	15.5
11	17.0	11.5	14.0	18.0	15.5	16.5	23.0	18.0	20.5	19.0	13.5	15.5
12	17.0	12.5	15.0	18.5	15.0	16.0	25.0	17.5	20.5	18.5	13.0	15.0
13	16.5	13.0	14.5	18.5	14.0	16.5	23.0	18.5	20.5	18.5	12.5	15.0
14	15.0	10.5	13.0	20.5	16.5	18.5	21.0	19.0	20.0	19.0	12.5	15.0
15	14.5	10.5	12.5	19.5	16.5	18.5	21.5	18.0	19.5	19.5	13.0	15.5
16	14.0	10.0	12.5	22.5	16.5	19.0	24.5	17.0	20.0	20.0	14.5	16.5
17	14.5	11.5	13.0	24.0	18.0	20.5	23.5	18.0	20.5	19.5	13.5	16.0
18	17.0	11.5	14.0	25.0	19.0	21.5	25.0	18.5	21.5	19.5	13.0	15.5
19	16.5	13.5	14.5	26.0	20.0	22.5	25.0	19.5	22.0	19.5	13.0	15.5
20	16.0	12.0	14.0	24.5	20.5	22.5	24.5	19.0	21.5	19.5	13.0	16.0
21	16.0	11.0	13.5	24.5	19.5	22.0	24.5	19.0	21.0	19.5	14.0	16.5
22	17.0	12.0	15.0	25.5	19.5	22.0	25.0	19.0	21.5	18.0	12.5	15.0
23	18.0	13.0	15.5	25.0	19.0	21.5	23.5	18.5	21.0	17.5	11.5	14.5
24	18.5	13.0	16.0	23.5	18.5	20.5	24.0	20.0	21.5	17.5	11.5	14.0
25	19.5	14.0	17.0	24.0	18.5	20.5	22.5	18.0	20.0	16.5	11.0	13.5
26	20.5	15.5	18.0	24.0	17.5	20.0	23.0	18.5	20.0	16.5	12.0	14.0
27	21.5	17.0	19.5	25.0	18.0	21.0	23.5	17.5	20.0	16.5	12.0	14.0
28	21.5	16.5	19.5	22.0	19.0	20.5	23.0	17.0	19.5	16.5	12.5	14.5
29	22.0	17.5	19.5	24.5	17.5	20.5	24.0	17.5	20.0	15.0	10.5	12.5
30	21.0	16.5	18.5	25.0	18.0	21.0	22.5	18.0	20.0	15.0	9.5	12.0
31	---	---	---	25.0	18.0	21.0	20.0	18.5	19.5	---	---	---
MONTH	22.0	7.5	14.0	26.0	11.5	19.5	26.0	17.0	20.5	21.5	9.5	15.5
YEAR	26.0	.0	7.5									

12305000 KOOTENAI RIVER AT LEONIA, ID

LOCATION.--Lat 48°37'04", long 116°02'47", in NW¼NW¼ sec.20, T.33 N., R.34 W., Principal meridian, Lincoln County, MT, Hydrologic Unit 17010104, on right bank at Leonia, 450 ft (137 m) east of Montana-Idaho State line, 0.5 mi (0.8 km) upstream from Boulder Creek, and at mile 171.6 (276.1 km).

DRAINAGE AREA.--11,740 mi² (30,407 km²), approximately.

PERIOD OF RECORD.--March 1928 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,790.25 ft (545.668 m), National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1970, at datum 90 ft (27.4 m) lower. Prior to Nov. 13, 1928, nonrecording gage on bridge 250 ft (76.2 m) upstream at datum 90.41 ft (27.557 m) lower.

REMARKS.--Water-discharge records good except those for January and April, which are fair. Diversions for irrigation of about 14,600 acres (5,900 hm²). Flow regulated by Libby Dam since Mar. 21, 1972 (see sta 12303000). U.S. Army Corps of Engineers radio telemeter at station.

AVERAGE DISCHARGE.--51 years, 13,950 ft³/s (395.1 m³/s), 16.14 in/yr (410 mm/yr), 10,110,000 acre-ft/yr (12.5 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 123,000 ft³/s (3,480 m³/s) May 28, 1948, gage height, 33.40 ft (10.180 m); minimum, 996 ft³/s (28.2 m³/s) Dec. 9, 1936; minimum gage height, 7.56 ft (2.304 m) Dec. 10, 1929.

EXTREMES OUTSIDE PERIOD OF RECORD.--Floods of June 1894 and 1916 reached stages of 34.6 ft (10.55 m) and 31.6 ft (9.63 m), respectively, present datum, from information by Great Northern Railway.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 22,800 ft³/s (646 m³/s) Dec. 9, gage height, 16.94 ft (5.163 m); minimum, 3,570 ft³/s (101 m³/s) Aug. 13, gage height, 9.75 ft (2.972 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14900	20000	22000	20700	15500	4550	5900	14500	8850	4790	7350	6880
2	14900	19300	22000	20600	14500	4580	5800	13300	9420	5120	7330	6360
3	14900	20200	22100	20500	11000	4600	5600	12500	10000	4820	7330	3810
4	15000	20900	21400	15600	5000	4700	5850	13500	10200	4570	6620	4540
5	13600	20900	21800	16000	5700	4850	6000	17600	10100	4460	3760	7720
6	14500	20700	21900	20800	13000	5300	6250	18200	10300	4390	4310	8780
7	12300	20500	22100	20500	5000	5700	6650	15800	9220	4330	7220	13100
8	14900	20700	22200	20100	4400	6100	6900	13400	8470	4240	7290	8060
9	14900	20700	22600	19500	4400	5900	7250	11800	7660	4190	7500	6510
10	14900	20600	11900	18900	4380	5710	7300	10900	7170	4100	7240	7410
11	11600	20500	9390	18300	4330	5550	7150	10500	8550	4070	6360	9040
12	11100	20600	21800	18500	4390	5540	6900	10600	8520	4070	3680	9060
13	11600	20700	22500	19200	4680	5670	6350	10800	8170	4030	4470	9090
14	10400	20700	21000	20100	4850	5700	6000	11200	7730	5010	7200	9080
15	10800	20800	21000	21000	4820	5750	6100	11800	7320	5870	7080	8550
16	12400	17500	22100	20200	4660	5940	6400	12800	7060	3930	7080	8030
17	9670	17500	21600	19900	4570	6150	6850	13100	6900	3880	7070	8850
18	9290	15000	12000	19600	4550	6190	7100	12300	6840	3840	6320	9050
19	9020	20900	21700	18500	4550	6370	7000	11800	6900	3790	3690	9040
20	9640	21000	21900	14000	4500	6370	6800	11300	6710	3710	4320	9070
21	10900	21100	22000	11100	4510	6360	6650	11300	6500	3680	6990	9110
22	10500	21000	21700	13000	4430	6130	6400	11900	6370	3720	7000	8740
23	7640	16800	21500	18500	4390	6110	6200	12800	6250	3680	7010	8070
24	12400	14600	21500	19200	4390	6180	6200	13600	6140	3650	7230	9220
25	14100	21600	21100	19500	4410	6470	6500	13400	6040	4350	6910	9090
26	15400	21600	21000	19500	4470	6590	6900	13200	5970	7010	6310	9120
27	18100	21700	16800	19900	4500	6580	8000	12900	5890	7110	4480	8080
28	18100	21800	20400	18000	4520	6350	9300	11100	5400	6640	7080	8800
29	18000	21800	20700	17500	---	6190	10500	9790	4710	3840	7070	8680
30	17700	21900	20800	19300	---	6070	12200	8970	4590	4100	7060	8040
31	18700	---	20600	19400	---	6010	---	8500	---	7190	7140	---
TOTAL	412060	603600	633090	579400	164400	180260	209200	385160	223970	142180	197500	248980
MEAN	13290	20120	20420	18690	5871	5815	6973	12420	7466	4586	6371	8299
MAX	18700	21900	22600	21000	15500	6590	12200	18200	10300	7190	7500	13100
MIN	7640	14600	9390	11100	4330	4550	5800	8500	4590	3650	3680	3810
AC-FT	817300	1197000	1256000	1149000	326100	357500	414900	764000	444200	282000	391700	493900

CAL YR 1978 TOTAL 4705900 MEAN 12890 MAX 22600 MIN 4540 AC-FT 9334000
WTR YR 1979 TOTAL 3979800 MEAN 10900 MAX 22600 MIN 3650 AC-FT 7894000

12323750 SILVER BOW CREEK AT WARM SPRINGS, MT

LOCATION.--Lat 46°11'07", long 112°46'04", in NW¼NE¼SE¼ sec.18, T.5 N., R.9 W., Deer Lodge County, Hydrologic Unit 17010201, on right bank 0.2 mi (0.3 km) upstream from confluence with Warm Springs Creek, 0.3 mi (0.5 km) upstream from county highway bridge, and 1.0 mi (1.6 km) northeast of Warm Springs.

DRAINAGE AREA.--483 mi² (1,251 km²).

PERIOD OF RECORD.--March 1972 to September 1979 (discontinued).

GAGE.--Water-stage recorder. Datum of gage is 4,787.95 ft (1,459.367 m) National Geodetic Vertical Datum of 1929. Prior to Dec. 9, 1972 at datum 1.00 ft (0.305 m) higher.

REMARKS.--Records good except those for winter period, which are fair. Flow can be regulated by dam on Anaconda Company tailing ponds about 0.5 mi (0.8 km) upstream from gage. Diversions for irrigation of about 4,650 acres (18.8 km²) above station. Several observations of water temperature were made during the year and are available in files of Helena district office.

AVERAGE DISCHARGE.--7 years, 146 ft³/s (4.135 m³/s), 105,800 acre-ft/yr (130 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,320 ft³/s (37.4 m³/s) June 20, 1975, gage height, 7.47 ft (2.277 m); maximum gage height, 8.64 ft (2.633 m) Jan. 16, 1974 (backwater from ice jam); minimum daily discharge, 15 ft³/s (0.43 m³/s) Sept. 12, 13, 1973.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 460 ft³/s (13.0 m³/s) May 25, gage height, 3.86 ft (1.177 m); maximum gage height, 4.68 ft (1.426 m) Jan. 19, Feb. 4 (backwater from ice); minimum daily discharge, 51 ft³/s (1.44 m³/s) Sept. 19.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	96	91	64	60	70	111	134	216	241	125	60	62
2	96	91	66	70	80	113	128	216	235	114	57	64
3	96	98	76	78	90	113	117	224	234	113	57	64
4	91	98	76	80	96	108	100	235	236	112	57	62
5	90	100	76	76	104	103	102	259	246	109	56	62
6	83	107	72	70	100	135	120	263	246	111	55	62
7	88	110	66	74	100	201	152	250	233	104	53	60
8	93	101	72	80	100	217	162	231	226	96	55	61
9	94	89	80	84	96	201	154	230	219	94	57	58
10	90	70	84	84	100	197	153	220	207	84	57	56
11	87	80	84	82	104	170	142	207	198	79	57	56
12	86	92	84	80	104	179	144	206	192	76	57	56
13	84	90	80	80	100	185	146	205	182	77	56	56
14	82	87	76	82	96	169	135	223	179	72	67	59
15	81	83	80	80	72	164	124	234	175	68	74	59
16	90	83	80	80	76	169	122	268	171	67	66	59
17	92	84	84	80	78	188	122	303	166	67	66	57
18	95	82	86	76	81	186	146	268	191	65	64	57
19	97	76	86	86	88	170	171	265	207	64	62	51
20	96	68	84	100	103	154	176	270	187	63	62	56
21	93	76	82	94	108	148	176	279	177	63	65	56
22	93	82	86	90	111	141	157	294	175	64	67	59
23	97	87	90	88	126	154	153	323	167	69	69	66
24	87	90	90	86	119	146	170	404	158	69	65	79
25	93	90	90	84	105	142	177	432	147	66	66	66
26	98	89	90	80	105	150	168	409	139	62	73	65
27	95	92	90	78	106	152	164	417	138	60	78	72
28	91	94	88	76	109	159	170	392	134	60	75	67
29	93	85	80	74	---	137	161	357	125	60	71	58
30	94	72	54	70	---	149	201	308	123	62	74	59
31	91	---	52	64	---	140	---	266	---	62	62	---
TOTAL	2832	2637	2448	2466	2721	4851	4467	8679	5656	2461	1964	1830
MEAN	91.4	87.9	79.0	79.6	97.2	156	149	280	189	79.4	63.4	61.0
MAX	98	110	90	100	126	217	201	432	246	125	78	79
MIN	81	68	52	60	70	103	100	205	123	60	53	51
AC-FT	5620	5230	4860	4900	5400	9620	8860	17210	11220	4880	3900	3630

CAL YR 1978 TOTAL 45863 MEAN 126 MAX 407 MIN 41 AC-FT 90970
WTR YR 1979 TOTAL 43014 MEAN 118 MAX 432 MIN 51 AC-FT 85320

12324200 CLARK FORK AT DEER LODGE, MT

LOCATION.--Lat 46°23'52", long 112°44'31", in SW¼SW¼SW¼ sec.33, T.8 N., R.9 W., Powell County, Hydrologic Unit 17010201, on left bank 35 ft (11 m) upstream from Milwaukee Avenue Bridge in Deer Lodge, 0.05 mi (0.08 km) upstream from Taylor Creek, 0.24 mi (0.39 km) downstream from Tin Cup Joe Creek, and at mile 461.2 (742.1 km).

DRAINAGE AREA.--1,005 mi² (2,603 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1978 to September 1979.

GAGE.--Water-stage recorder. Altitude of gage is 4,500 ft (1,370 m), from topographic map.

REMARKS.--Water-discharge records good except those for winter period, which are fair. Diversions above station for irrigation of about 31,000 acres (77.9 km²).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 697 ft³/s (19.7 m³/s) May 25, 1979, gage height, 3.34 ft (1.018 m); maximum gage height, 3.48 ft (1.061 m) Jan. 10 (backwater from ice); minimum daily discharge, 68 ft³/s (1.93 m³/s) Aug. 8, 1979.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 697 ft³/s (19.7 m³/s) May 25, gage height, 3.34 ft (1.018 m); maximum gage height, 3.48 ft (1.061 m) Jan. 10 (backwater from ice); minimum daily discharge, 68 ft³/s (1.93 m³/s) Aug. 8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	334	305	265	180	200	315	322	452	349	165	78	128
2	338	311	262	200	218	313	311	441	322	163	76	133
3	338	314	270	225	235	297	303	432	296	152	76	130
4	329	321	290	240	241	312	295	439	300	156	74	122
5	325	305	287	250	241	316	297	464	329	146	70	124
6	311	311	277	221	252	349	313	505	347	148	70	124
7	312	326	250	220	273	558	353	482	325	149	69	124
8	310	320	210	222	270	552	369	443	319	140	68	122
9	321	317	240	232	282	471	357	426	301	130	70	117
10	311	197	255	240	291	449	369	407	287	128	70	110
11	299	219	260	240	305	421	356	382	273	121	73	114
12	293	295	260	248	357	429	336	359	261	117	76	115
13	293	295	250	240	536	437	346	355	259	121	81	119
14	293	250	260	249	560	405	324	354	276	108	88	121
15	292	260	267	260	357	400	315	367	287	100	96	120
16	298	294	263	230	340	416	312	368	271	93	95	121
17	305	300	253	210	325	457	313	406	262	92	103	127
18	308	310	264	220	296	445	350	391	287	85	98	121
19	308	263	258	230	291	414	394	356	351	83	98	114
20	304	235	265	250	296	380	405	364	347	88	100	114
21	291	250	269	254	300	365	394	367	305	91	101	125
22	292	270	274	243	296	354	382	386	293	87	113	121
23	297	278	263	240	296	355	371	396	268	102	113	129
24	287	282	288	238	300	357	381	503	248	97	107	150
25	292	279	290	233	296	348	381	658	220	86	119	150
26	312	288	290	230	310	341	376	634	210	78	119	149
27	313	298	292	222	330	346	367	635	191	82	138	153
28	305	300	290	215	325	347	373	607	174	83	145	153
29	306	290	280	205	---	359	391	556	157	88	129	146
30	314	275	200	195	---	344	418	465	152	83	122	137
31	304	---	160	185	---	332	---	415	---	80	123	---
TOTAL	9543	8558	8090	7063	8619	11984	10587	13829	8267	3444	2960	3833
MEAN	308	285	261	228	308	387	353	446	276	111	95.5	128
MAX	338	326	292	260	560	558	418	658	351	165	145	153
MIN	287	197	160	180	200	297	295	354	152	78	68	110
AC-FT	18930	16970	16050	14010	17100	23770	21000	27430	16400	6830	5870	7600

WTR YR 1979 TOTAL 96777 MEAN 265 MAX 658 MIN 68 AC-FT 192000

12324200 CLARK FORK AT DEER LODGE, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1969-71, October 1978 to September 1979.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: October 1978 to September 1979.

INSTRUMENTATION.--Temperature recorder since October 1978.

EXTREMES FOR CURRENT YEAR.--Maximum, 23.0°C July 18, 21; minimum, 0.0°C on many days during November to March.

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	10.5	9.0	9.5	3.5	1.0	2.0	.5	.0	.0	.0	.0	.0
2	10.0	7.5	8.5	5.0	2.0	3.5	.0	.0	.0	.0	.0	.0
3	9.0	6.5	8.0	6.5	4.0	5.0	.0	.0	.0	.0	.0	.0
4	10.0	6.5	6.5	6.5	5.0	5.5	.5	.0	.0	.0	.0	.0
5	9.5	6.5	8.0	4.5	2.5	3.5	.0	.0	.0	.0	.0	.0
6	9.5	6.5	8.0	2.5	1.0	2.0	.0	.0	.0	.0	.0	.0
7	10.0	6.5	8.5	5.0	2.0	3.5	.0	.0	.0	.0	.0	.0
8	11.5	8.0	9.5	5.5	4.0	4.5	.0	.0	.0	.0	.0	.0
9	11.0	7.5	9.5	4.5	.0	2.5	.0	.0	.0	.0	.0	.0
10	10.5	7.5	9.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11	11.0	8.0	9.5	.0	.0	.0	.5	.0	.0	.0	.0	.0
12	9.5	7.0	8.0	.0	.0	.0	.5	.0	.0	.0	.0	.0
13	7.5	4.5	6.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
14	8.0	4.5	6.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
15	8.5	5.0	7.0	.0	.0	.0	.0	.0	.0	.5	.0	.0
16	8.5	6.5	7.5	.0	.0	.0	.0	.0	.0	.5	.0	.0
17	9.0	6.5	8.0	.5	.0	.5	.0	.0	.0	.0	.0	.0
18	9.0	6.0	7.5	.5	.0	.0	.0	.0	.0	.5	.0	.0
19	8.5	5.5	7.0	.0	.0	.0	.5	.0	.0	.5	.0	.0
20	8.5	6.0	7.5	.0	.0	.0	.0	.0	.0	.5	.0	.0
21	8.5	7.0	7.5	.0	.0	.0	.5	.0	.0	.5	.0	.0
22	7.0	4.5	6.0	.0	.0	.0	.5	.0	.0	.5	.0	.0
23	7.5	4.5	6.0	.5	.0	.0	.5	.0	.0	.5	.0	.0
24	7.0	5.5	6.5	.5	.0	.0	.5	.0	.0	.5	.0	.0
25	5.0	3.5	4.5	.5	.0	.0	.0	.0	.0	.5	.0	.0
26	5.0	2.5	4.0	.5	.0	.0	.0	.0	.0	.0	.0	.0
27	5.0	3.0	4.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
28	7.5	5.0	6.0	1.0	.0	.0	.0	.0	.0	.5	.0	.0
29	6.0	4.5	5.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
30	4.5	2.5	3.5	.5	.0	.0	.0	.0	.0	.0	.0	.0
31	3.5	1.0	2.5	---	---	---	.0	.0	.0	.0	.0	.0
MONTH	11.5	1.0	7.0	6.5	.0	1.0	.5	.0	.0	.5	.0	.0

12324200 CLARK FORK AT DEER LODGE, MT--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	.0	.0	.0	2.0	.5	1.0	3.5	1.0	2.5	11.5	8.5	10.0
2	.0	.0	.0	2.5	.0	1.0	3.0	1.0	2.0	13.0	7.5	10.5
3	.5	.0	.0	2.0	.0	.5	3.5	1.0	2.5	14.0	8.5	11.5
4	.5	.0	.0	2.0	.0	1.0	5.0	2.5	3.5	12.0	10.0	10.5
5	.5	.0	.0	3.5	1.5	2.5	9.0	4.5	6.5	10.0	8.5	9.0
6	.5	.0	.0	4.0	2.5	3.0	8.5	5.0	7.0	9.0	7.5	8.0
7	.5	.0	.0	4.0	1.5	2.5	7.0	5.5	6.5	11.0	6.0	8.5
8	.5	.0	.0	3.5	1.0	2.0	8.0	4.0	6.0	9.0	6.0	7.5
9	.5	.0	.5	4.0	1.0	2.5	7.0	4.5	5.5	8.0	4.5	6.0
10	1.0	.0	.5	4.5	1.0	3.0	5.5	3.0	4.5	9.0	5.5	7.5
11	.5	.0	.5	5.5	1.5	3.5	7.0	3.5	5.0	11.0	7.0	9.0
12	.5	.0	.5	5.5	3.0	4.0	8.0	4.5	6.0	11.5	7.5	9.5
13	.5	.0	.5	5.0	1.5	3.5	8.5	5.5	6.5	12.5	9.0	10.5
14	.0	.0	.0	6.0	2.0	4.0	8.0	5.0	6.5	12.5	9.0	11.0
15	.5	.0	.0	6.5	2.5	4.5	9.5	6.0	7.5	15.0	10.0	12.5
16	.5	.0	.0	6.0	3.5	4.5	9.5	5.5	8.0	14.0	11.5	12.5
17	1.0	.0	.0	4.5	3.5	4.0	9.5	6.5	8.0	14.5	10.0	12.0
18	1.5	.0	.5	5.0	3.0	4.0	8.0	5.5	6.5	14.5	10.5	12.0
19	1.0	.0	.5	4.5	3.5	4.0	8.0	4.5	6.5	15.5	10.0	12.5
20	1.5	.0	.5	6.0	2.0	4.0	7.5	5.0	6.5	16.5	10.5	13.5
21	1.5	.0	.5	6.5	3.0	4.5	9.5	4.5	7.0	17.5	11.5	14.5
22	1.0	.0	.0	6.5	3.5	5.0	10.0	7.0	8.5	18.0	12.0	15.0
23	.5	.0	.0	6.5	2.5	4.5	8.5	4.5	6.5	18.5	12.5	15.5
24	1.5	.0	.5	7.5	3.5	5.5	7.5	4.0	5.5	15.0	12.5	14.0
25	2.0	.0	.5	6.5	3.5	4.5	8.5	6.0	7.0	15.5	11.5	13.5
26	2.0	.0	1.0	4.0	2.5	3.5	11.0	6.5	8.5	16.5	13.0	14.5
27	2.0	.0	1.0	3.5	1.0	3.0	12.5	7.5	10.0	14.5	11.0	13.5
28	2.0	.0	1.0	4.0	.0	2.0	13.0	8.5	11.0	12.0	9.0	10.5
29	---	---	---	4.5	3.0	3.5	12.5	9.0	11.0	12.0	7.5	9.5
30	---	---	---	5.0	2.5	4.0	11.5	8.0	9.5	14.0	9.5	11.0
31	---	---	---	5.5	2.5	3.0	---	---	---	---	10.0	---
MONTH	2.0	.0	.5	7.5	.0	3.5	13.0	1.0	6.5	18.5	4.5	11.0

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	15.0	---	---	17.0	11.5	14.0	22.0	14.5	18.0	17.5	11.0	14.0
2	15.0	11.0	13.0	17.0	10.0	13.0	22.0	14.0	18.0	17.5	13.0	15.5
3	18.0	11.0	14.5	18.0	11.5	15.0	21.5	14.0	17.5	17.0	12.5	15.0
4	17.5	13.0	15.5	18.5	13.5	16.0	21.5	14.0	17.5	15.5	11.5	13.5
5	15.5	13.0	14.0	20.5	14.0	17.5	20.5	14.5	17.5	16.5	10.5	13.5
6	13.0	10.0	11.5	19.5	15.0	18.0	21.0	13.0	17.0	17.5	11.5	14.5
7	12.0	8.5	10.0	20.5	14.0	17.5	21.5	14.0	17.5	18.5	12.5	15.5
8	13.5	8.5	11.0	20.5	15.0	17.5	19.0	14.0	16.5	19.0	13.5	16.0
9	17.0	9.5	13.0	21.0	14.5	18.0	21.0	13.0	16.5	17.5	13.5	15.5
10	16.5	12.0	14.5	20.5	15.0	18.0	21.0	13.5	17.5	15.0	11.5	13.5
11	19.0	12.0	15.5	19.5	14.5	17.0	19.5	14.0	16.5	14.0	9.5	12.0
12	20.0	13.0	16.5	18.0	13.5	15.5	17.0	14.5	16.0	14.5	8.5	11.5
13	19.5	14.0	16.5	20.0	12.0	16.0	15.5	13.5	14.0	15.5	10.0	12.5
14	17.0	12.5	14.5	20.0	13.0	16.5	19.0	12.5	15.5	15.5	9.5	12.5
15	16.0	10.5	13.5	19.5	13.0	16.0	19.5	14.0	17.0	16.0	10.0	13.0
16	18.0	11.5	15.0	22.0	13.0	17.5	19.0	13.0	16.0	16.0	10.5	13.5
17	15.0	13.0	14.0	22.5	15.0	19.0	20.5	13.0	17.0	16.5	11.0	13.5
18	14.5	12.0	13.0	23.0	15.5	19.0	20.0	15.0	17.5	16.0	10.5	13.5
19	13.0	11.5	12.5	22.0	16.0	19.0	19.5	14.5	17.0	15.5	10.0	13.0
20	17.5	10.5	14.0	20.0	15.5	18.5	17.0	15.0	16.0	15.5	10.0	13.0
21	15.0	12.0	13.5	23.0	14.5	19.0	17.5	12.0	14.5	15.5	10.5	13.0
22	18.0	11.5	14.5	20.5	16.5	17.5	19.0	12.0	15.5	15.5	10.5	13.0
23	19.5	12.5	16.0	22.5	14.0	18.0	19.0	13.5	16.5	15.0	10.0	12.5
24	19.5	13.5	17.0	22.5	15.0	18.5	18.0	14.0	15.5	15.0	9.5	12.5
25	21.5	14.5	18.0	21.5	14.5	18.0	19.0	13.0	16.0	14.0	10.0	12.0
26	21.5	15.5	18.5	21.0	14.0	17.5	16.0	13.5	15.0	14.5	11.5	13.0
27	21.5	16.0	19.0	20.5	14.5	17.5	15.5	12.0	14.0	15.0	10.5	12.5
28	22.5	15.5	19.0	17.0	14.0	15.0	18.5	12.0	15.0	14.5	10.0	12.5
29	20.0	16.0	18.0	20.5	11.5	16.0	19.5	13.0	16.0	13.5	9.5	12.0
30	17.5	15.0	16.0	22.0	14.0	18.0	18.5	14.0	16.5	13.5	9.5	11.5
31	---	---	---	22.0	14.5	18.0	15.5	13.0	14.0	---	---	---
MONTH	22.5	8.5	15.0	23.0	10.0	17.0	22.0	12.0	16.5	19.0	8.5	13.5
YEAR	23.0	.0	7.5									

12324590 LITTLE BLACKFOOT RIVER NEAR GARRISON, MT

LOCATION.--Lat 46°32'12", long 112°43'33", in SE¼NE¼ sec.16, T.9 N., R.9 W., Powell County, Hydrologic Unit 17010201, on left bank 200 ft (61 m) downstream from bridge on county road, 4 mi (6 km) east of Garrison.

DRAINAGE AREA.--398 mi² (1,031 km²).

PERIOD OF RECORD.--October 1972 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 4,430 ft (1,350 m), from topographic map.

REMARKS.--Records good except those for winter period, which are poor. A few minor irrigation holding reservoirs in upper reaches of drainage. Diversions for irrigation of about 10,500 acres (42.5 km²). Several observations of water temperature were made during the year and are available in files of Helena district office.

AVERAGE DISCHARGE.--7 years, 173 ft³/s (4.899 m³/s), 125,300 acre-ft/yr (154 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,650 ft³/s (103 m³/s) June 19, 1975, gage height, 7.50 ft (2.286 m); minimum, 6.0 ft³/s (0.17 m³/s) Aug. 24, 1977, gage height, 2.94 ft (0.896 m).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 550 ft³/s (15.6 m³/s) and maximums (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
May 6	1300	850	24.1	5.28	1.609	May 24	2000	*1,120	31.7	*5.61	1.710

Minimum discharge, 13 ft³/s (0.37 m³/s) Aug. 6, gage height, 3.09 ft (0.942 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	86	65	59	30	59	70	106	634	542	108	57	45
2	84	67	57	35	61	71	99	504	496	109	57	44
3	84	67	58	42	65	69	99	575	463	103	58	43
4	82	69	60	41	68	71	101	650	435	100	54	43
5	81	68	55	40	73	73	157	716	425	97	49	43
6	80	66	50	38	74	90	230	802	431	92	41	42
7	81	66	40	35	73	153	315	737	437	86	14	40
8	79	68	48	37	70	170	228	658	449	80	14	40
9	77	67	50	43	84	161	243	591	406	74	16	42
10	77	64	52	50	87	143	233	539	362	57	17	42
11	76	64	53	53	88	140	204	514	328	57	16	40
12	76	63	54	53	90	151	191	505	292	57	17	41
13	76	62	50	52	94	164	186	506	266	55	18	41
14	77	61	52	53	84	154	188	574	233	54	20	42
15	77	60	51	54	71	155	216	638	206	67	20	41
16	76	61	50	52	78	173	237	740	206	76	17	40
17	75	63	50	50	83	192	290	829	211	70	17	41
18	74	54	49	55	82	174	297	860	219	67	18	40
19	74	52	48	56	81	160	272	870	229	63	29	40
20	73	55	51	60	78	145	262	865	229	60	44	40
21	72	56	53	64	76	135	249	866	208	60	45	38
22	70	57	55	60	76	139	261	921	210	60	44	35
23	70	58	56	62	74	134	302	957	190	69	43	35
24	70	59	50	59	83	152	264	1050	162	70	44	36
25	70	60	45	57	87	184	253	1080	151	70	44	36
26	70	60	43	55	83	136	273	1010	134	70	43	37
27	69	58	44	52	80	121	308	959	122	67	42	36
28	72	60	40	53	74	109	386	898	115	62	44	36
29	71	62	35	50	---	124	441	805	104	65	43	36
30	71	62	32	48	---	120	515	708	104	62	42	37
31	67	---	30	50	---	113	---	625	---	59	46	---
TOTAL	2337	1854	1520	1539	2176	4146	7406	23206	8367	2246	1073	1192
MEAN	75.4	61.8	49.0	49.6	77.7	134	247	749	279	72.5	34.6	39.7
MAX	86	69	60	64	94	192	515	1080	542	109	58	45
MIN	67	52	30	30	59	69	99	505	104	54	14	35
AC-FT	4640	3680	3010	3050	4320	8220	14690	46030	16600	4450	2130	2360

CAL YR 1978 TOTAL 68345 MEAN 187 MAX 1110 MIN 30 AC-FT 135600
WTR YR 1979 TOTAL 57062 MEAN 156 MAX 1080 MIN 14 AC-FT 113200

12324680 CLARK FORK AT GOLD CREEK, MT

LOCATION.--Lat 46°35'32", long 122°55'24", in SE¼NW¼SW¼ sec.25, T.10 N., R.11 W., Powell County, Hydrologic Unit 17010203, on right bank at county road bridge, 0.4 mi (0.6 km) north of the town of Gold Creek, 1.1 mi (1.8 km) downstream from Gold Creek, and at mile 436.9 (703.0 km).

DRAINAGE AREA.--1,704 mi² (4,413 km²).

PERIOD OF RECORD.--October 1977 to current year.

GAGE.--Water-stage recorder. Datum of gage is 4,172.80 ft (1,271.869 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair except those for winter period, which are poor. Some regulation by settling ponds on Silver Bow Creek near Anaconda. Diversions for irrigation of about 40,100 acres (162 km²) above station. Several observations of water temperature were made during the year and are available in files of the Helena district office.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,470 ft³/s (69.9 m³/s) May 27, 1979, gage height, 6.41 ft (1.954 m); maximum gage height recorded, 6.69 ft (2.039 m) Jan. 10, 1979 (backwater from ice); minimum discharge, 108 ft³/s (3.06 m³/s) Aug. 10, 11, 1979, gage height, 3.64 ft (1.109 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,470 ft³/s (69.9 m³/s) May 27, gage height, 6.41 ft (1.954 m); maximum gage height recorded, 6.69 ft (2.039 m) Jan. 10 (backwater from ice); minimum discharge, 108 ft³/s (3.06 m³/s) Aug. 10, 11, gage height, 3.64 ft (1.109 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	565	486	405	250	320	500	588	1360	1230	386	186	242
2	556	492	410	270	335	500	565	1340	1140	382	187	240
3	561	498	420	345	360	480	568	1300	1050	354	187	247
4	564	514	435	390	380	485	559	1350	1050	352	174	239
5	553	490	430	370	390	490	604	1490	1050	343	165	237
6	546	478	400	365	400	539	735	1620	1070	324	154	237
7	542	492	360	380	415	775	882	1430	1050	304	136	221
8	547	503	300	400	430	939	795	1210	999	287	124	212
9	539	509	350	415	430	806	798	1110	903	279	122	208
10	548	410	395	425	465	736	798	1070	784	252	115	205
11	539	337	410	430	485	712	749	1060	763	240	116	207
12	525	390	420	430	540	729	709	1040	713	228	123	212
13	526	405	395	430	630	763	706	1030	692	222	129	218
14	533	418	410	440	750	713	693	1060	665	216	146	225
15	537	410	420	430	600	703	701	1160	648	205	174	227
16	534	420	420	400	545	762	717	1270	614	214	174	220
17	541	412	395	360	525	870	782	1490	600	210	174	223
18	545	340	400	345	490	819	850	1550	615	197	177	224
19	543	284	420	360	470	760	858	1480	658	189	179	207
20	538	270	420	385	470	706	858	1440	688	177	214	194
21	526	340	430	400	480	679	835	1450	638	176	204	203
22	515	405	440	395	480	676	835	1580	647	171	212	202
23	516	425	440	360	470	654	880	1740	602	193	210	200
24	515	440	435	375	475	679	850	2040	553	206	202	221
25	495	445	430	370	475	721	840	2370	502	190	209	239
26	510	450	420	360	485	650	858	2390	450	178	214	247
27	520	460	415	360	520	637	888	2400	427	173	228	259
28	513	470	400	350	534	605	983	2350	404	176	244	267
29	503	450	380	340	---	661	1070	2010	377	190	240	257
30	508	420	300	320	---	619	1180	1720	362	197	224	245
31	500	---	210	300	---	614	---	1460	---	186	239	---
TOTAL	16503	12913	12315	11570	13349	20982	23734	47300	21944	7397	5584	6785
MEAN	532	430	397	373	477	677	791	1526	731	239	180	226
MAX	565	514	440	440	750	939	1180	2400	1230	386	244	267
MIN	495	270	210	250	320	480	559	1030	362	171	115	194
AC-FT	32730	25610	24430	22950	26480	41620	47080	93820	43530	14670	11080	13460

CAL YR 1978 TOTAL 241704 MEAN 662 MAX 2230 MIN 191 AC-FT 479400
WTR YR 1979 TOTAL 200376 MEAN 549 MAX 2400 MIN 115 AC-FT 397400

12325500 FLINT CREEK NEAR SOUTHERN CROSS, MT

LOCATION.--Lat 46°14'02", long 113°17'43", in SE¼NW¼ sec.36, T.6 N., R.14 W., Granite County, Hydrologic Unit 17010202, on left wing of weir 0.5 mi (0.8 km) downstream from powerplant, 2.0 mi (3.2 km) downstream from Georgetown Dam, 3.5 mi (5.6 km) northwest of Southern Cross, 6.8 mi (10.9 km) south of Philipsburg, and at mile 36.8 (59.2 km).

DRAINAGE AREA.--52.6 mi² (136.2 km²).

PERIOD OF RECORD.--October 1940 to current year.

REVISED RECORDS.--WSP 1216: 1942(M). WSP 1246: Drainage area.

GAGE.--Nonrecording gage and sharp-crested, contracted, rectangular weir. Altitude of gage is 5,630 ft (1,720 m), from topographic map. Prior to Nov. 27, 1973, gage at same site and datum 0.20 ft (0.061 m) higher.

REMARKS.--Records good. Flow regulated by Georgetown Lake (see p. 765,769). Several observations of water temperature were made during the water year. Flow may be augumented by transbasin diversion from Silver Lake to Georgetown Lake or reduced by pumping from Georgetown Lake to Silver Lake.

COOPERATION.--Gage-height record furnished by The Montana Power Company under general supervision of Geological Survey in connection with a Federal Power Commission project.

AVERAGE DISCHARGE.--39 years, 28.6 ft³/s (0.810 m³/s), 20,720 acre-ft/yr (25.5 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 174 ft³/s (4.93 m³/s) June 13, 1942, gage height, 1.86 ft (0.567 m); maximum gage height observed, 2.58 ft (0.786 m) July 6, 1975; probably no flow for parts of May 23, 1942, Aug. 20, 1943, Oct. 6, 1954, Nov. 29, Dec. 1, 1966, and no flow Nov. 30, 1966, when generator was shut down.

EXTREMES FOR CURRENT YEAR.--Maximum discharge observed, 53 ft³/s (1.50 m³/s) Oct. 1, 2, gage height, 1.22 ft (0.372 m); minimum daily, 14 ft³/s (0.40 m³/s) Mar. 13.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	53	27	28	28	28	28	15	19	31	31	31	31
2	40	27	28	28	28	28	15	19	30	31	31	31
3	28	27	28	28	28	28	15	19	30	31	31	31
4	28	27	28	28	28	28	15	20	30	31	31	31
5	28	27	28	28	28	28	15	20	30	31	31	31
6	28	27	28	28	28	28	16	21	30	33	31	31
7	28	27	28	28	28	28	16	22	30	33	31	31
8	28	27	28	28	28	28	16	21	30	31	31	31
9	28	27	28	28	28	28	16	21	30	31	31	31
10	28	27	28	28	28	28	16	20	30	31	31	31
11	28	27	28	28	28	28	16	20	30	31	31	31
12	28	27	28	28	28	21	16	20	30	31	31	31
13	28	27	28	28	28	14	16	20	30	31	31	31
14	27	27	28	28	28	15	16	20	30	31	31	31
15	27	27	28	28	28	15	17	21	30	31	31	31
16	27	27	28	28	28	15	17	22	30	31	31	31
17	27	27	28	28	28	15	17	22	30	31	31	31
18	27	27	28	28	28	15	18	22	30	31	31	31
19	27	27	28	28	28	15	18	22	30	31	31	31
20	27	27	28	28	28	15	17	22	30	31	31	31
21	27	27	28	28	28	15	17	22	35	31	31	31
22	27	27	28	28	28	15	17	26	39	31	31	31
23	27	27	28	28	28	15	17	31	39	31	31	31
24	27	27	28	28	28	15	17	31	39	31	31	31
25	27	27	28	28	28	15	17	31	34	31	31	31
26	27	27	28	28	28	15	17	31	29	31	31	31
27	27	27	28	28	28	15	18	31	31	31	33	31
28	27	27	28	28	28	15	18	31	31	31	33	31
29	27	28	28	28	---	15	18	31	31	31	33	31
30	27	28	28	28	---	15	18	31	31	31	33	31
31	27	---	28	28	---	15	---	31	---	31	33	---
TOTAL	887	812	868	868	784	613	497	740	940	965	971	930
MEAN	28.6	27.1	28.0	28.0	28.0	19.8	16.6	23.9	31.3	31.1	31.3	31.0
MAX	53	28	28	28	28	28	18	31	39	33	33	31
MIN	27	27	28	28	28	14	15	19	29	31	31	31
AC-FT	1760	1610	1720	1720	1560	1220	986	1470	1860	1910	1930	1840

CAL YR 1978 TOTAL 11232.5 MEAN 30.8 MAX 109 MIN 6.5 AC-FT 22280
WTR YR 1979 TOTAL 9875.0 MEAN 27.1 MAX 53 MIN 14 AC-FT 19590

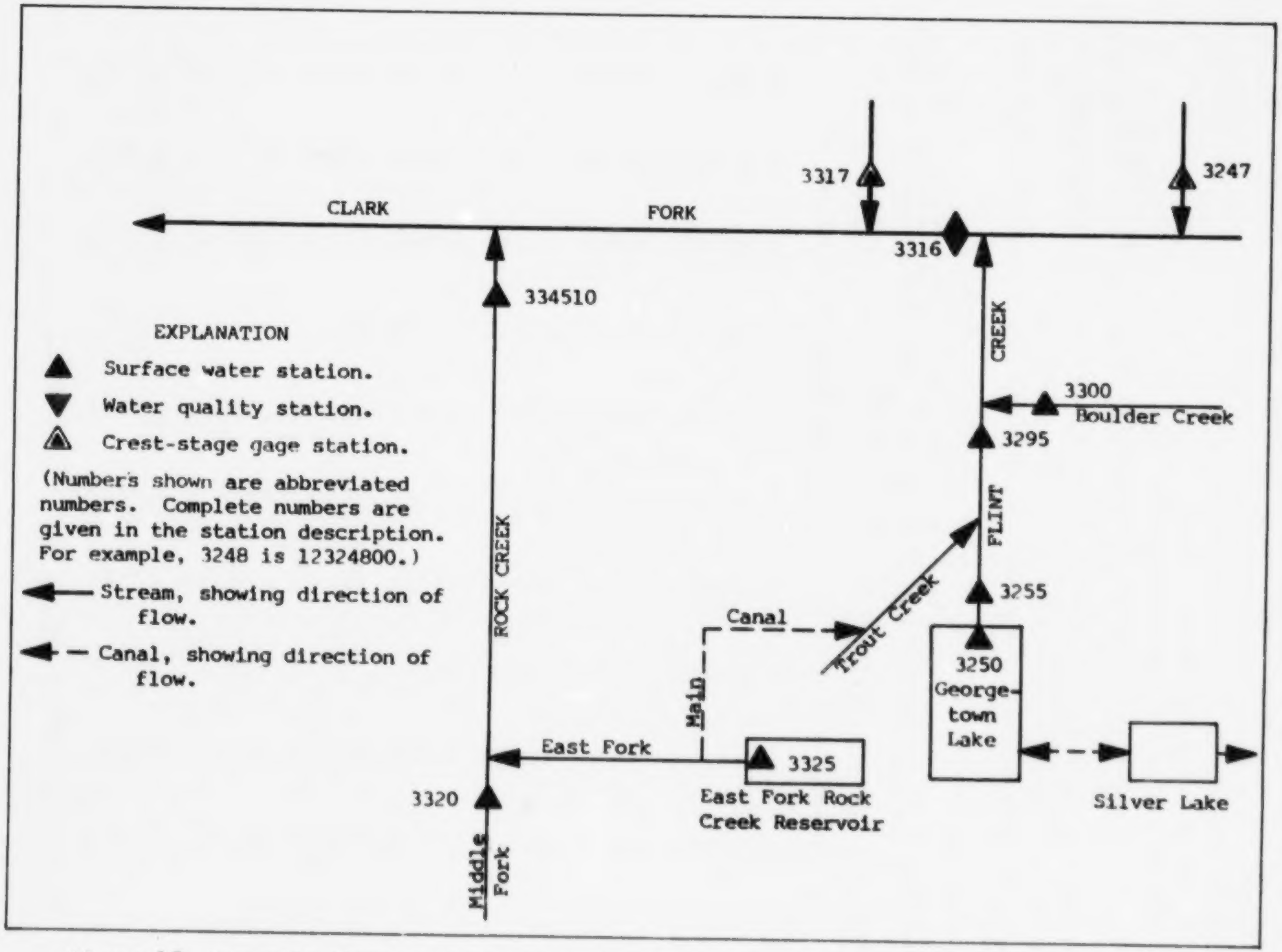

CLARK
FORK
3317
3247
3316
334510
CREEK
3300
Boulder Creek
3295
FLINT
3255
Canal
Trout Creek
3250
George-
town
Lake
Main
East Fork
3325
East Fork Rock
Creek Reservoir
Silver Lake
ROCK CREEK
3320
Middle
Fork
EXPLANATION
Surface water station.
Water quality station.
Crest-stage gage station.
(Numbers shown are abbreviated numbers. Complete numbers are given in the station description. For example, 3248 is 12324800.)
Stream, showing direction of flow.
Canal, showing direction of flow.

Figure 10. Schematic diagram showing diversion from Rock Creek basin to Flint Creek basin.

12329500 FLINT CREEK AT MAXVILLE, MT

LOCATION.--Lat 46°27'54", long 113°14'20", in NW¼ sec.9, T.8 N., R.13 W., Granite County, Hydrologic Unit 17010202, on right bank 0.4 mi (0.6 km) west of Maxville and 1.0 mi (1.6 km) upstream from Boulder Creek.

DRAINAGE AREA.--208 mi² (539 km²).

PERIOD OF RECORD.--August 1941 to current year. April 1939 to September 1941 at site 0.5 mi (0.8 km) upstream (above Maxville siding); records not equivalent owing to diversions.

REVISED RECORDS.--WSP 1216: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 4,828.38 ft (1,471.690 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for winter period, which are poor. Several observations of water temperatures were made during the water year. Some regulation by Georgetown Lake (see p. 765,769). Diversions for irrigation. of about 8,200 acres (33.2 km²) above station. During irrigation season, flow is supplemented by water from East Fork Rock Creek which is diverted in sec.5, T.4 N., R.14 W., 500 ft (152 m) below Rock Creek Dam, through a canal into Trout Creek, thence into Flint Creek, (see schematic diagram, p. 680).

AVERAGE DISCHARGE.--38 years, 99.3 ft³/s (2.813 m³/s), 71,940 acre-ft/yr (88.6 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,680 ft³/s (47.6 m³/s) Mar. 28, 1943, gage height, 6.79 ft (2.070 m), from rating curve extended above 600 ft³/s (17.0 m³/s); maximum gage height, 8.08 ft (2.463 m) Feb. 4, 1963 (backwater from ice); minimum daily discharge, 15 ft³/s (0.42 m³/s) Feb. 25, 1962.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 260 ft³/s (7.36 m³/s) May 27, gage height, 3.73 ft (1.137 m); maximum gage height, 4.10 ft (1.250 m) Jan. 29 (backwater from ice); minimum daily discharge, 35 ft³/s (0.99 m³/s) Dec. 31.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	174	73	73	45	55	98	53	136	71	96	98	132
2	158	76	72	60	60	96	54	131	67	89	106	125
3	132	77	71	55	65	94	55	125	71	81	110	125
4	121	76	73	50	70	100	54	131	88	74	141	127
5	116	77	69	45	75	110	57	142	111	70	160	129
6	115	74	65	40	74	130	68	152	106	60	174	139
7	111	77	55	42	72	146	79	139	89	57	161	141
8	106	79	45	44	70	166	70	124	76	52	154	131
9	102	81	55	46	75	116	70	111	66	52	152	106
10	100	52	65	48	80	98	74	103	64	50	143	102
11	97	58	70	52	85	101	72	97	75	46	135	97
12	94	76	65	50	90	116	69	91	89	51	132	96
13	93	74	55	54	85	94	68	91	113	54	128	100
14	91	74	60	69	80	78	65	97	121	54	133	106
15	88	68	65	59	75	78	68	110	103	58	125	101
16	87	74	62	58	70	78	70	133	89	72	124	96
17	87	75	60	54	80	78	80	138	85	73	124	96
18	86	76	64	56	90	69	91	124	96	67	127	94
19	88	63	71	58	88	76	84	116	141	72	127	94
20	87	46	69	60	86	67	76	119	146	79	123	88
21	85	53	66	63	84	66	73	124	157	81	121	84
22	81	52	69	64	82	66	76	120	176	80	128	75
23	80	69	68	68	80	62	87	124	131	88	121	76
24	78	75	69	65	85	65	82	160	116	90	120	73
25	78	77	63	62	90	69	84	190	113	97	119	69
26	78	75	60	50	95	59	85	201	112	111	116	70
27	77	72	55	55	100	59	91	233	105	101	127	70
28	78	74	50	58	100	57	111	213	98	108	120	68
29	77	73	45	50	---	62	117	146	93	117	116	66
30	77	74	40	45	---	57	128	102	88	103	116	64
31	73	---	35	50	---	55	---	82	---	105	117	---
TOTAL	2995	2120	1904	1675	2241	2666	2311	4105	3056	2388	3998	2940
MEAN	96.6	70.7	61.4	54.0	80.0	86.0	77.0	132	102	77.0	129	98.0
MAX	174	81	73	69	100	166	128	233	176	117	174	141
MIN	73	46	35	40	55	55	53	82	64	46	98	64
AC-FT	5940	4210	3780	3320	4450	5290	4580	8140	6060	4740	7930	5830

CAL YR 1978 TOTAL 38795 MEAN 106 MAX 272 MIN 32 AC-FT 76950
WTR YR 1979 TOTAL 32399 MEAN 88.8 MAX 233 MIN 35 AC-FT 64260

12330000 BOULDER CREEK AT MAXVILLE, MT

LOCATION.--Lat 46°28'20", long 113°13'59", in SW¼ sec.4, T.8 N., R.13 W., Granite County, Hydrologic Unit 17010202, on right bank 0.2 mi (0.3 km) upstream from mouth and 0.7 mi (1.1 km) north of Maxville.

DRAINAGE AREA.--71.3 mi^2 (184.7 km^2).

PERIOD OF RECORD.--April 1939 to current year. Monthly discharge only for some periods, published in WSP 1316.

GAGE.--Water-stage recorder. Altitude of gage is 4,750 ft (1,448 m), from topographic map. Apr. 15, 1939, to July 7, 1941, nonrecording gage at site 75 ft (23 m) upstream at different datum. July 8-20, 1941, nonrecording gage at site 175 ft (53 m) upstream at datum 1.03 ft (0.314 m) higher.

REMARKS.--Records good except those for winter period, which are poor. Several observations of water temperatures were made during the year. Diversions for irrigation of about 238 acres (960,000 m^2), all of which lies below station.

AVERAGE DISCHARGE.--40 years, 47.5 ft^3/s (1.345 m^3/s), 34,410 acre-ft/yr (42.4 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,460 ft^3/s (41.3 m^3/s) June 19, 1975, gage height, 4.55 ft (1.387 m) in gage well, 4.80 ft (1.463 m), from floodmarks; minimum, 3.0 ft^3/s (0.085 m^3/s) about Mar. 24, 1964, gage height, 0.73 ft (0.223 m), result of freezeup.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 150 ft^3/s (4.25 m^3/s) and maximums (*):

Date	Time	Discharge		Gage height		Date	Time	Discharge		Gage height	
		(ft^3/s)	(m^3/s)	(ft)	(m)			(ft^3/s)	(m^3/s)	(ft)	(m)
May 25	0110	* 379	10.7	*3.31	1.009	June 13	0130	225	6.37	2.79	0.850
June 5	0015	248	7.02	2.88	0.878	June 19	1100	202	5.72	2.69	0.820

Minimum discharge, 10 ft^3/s (0.28 m^3/s) all or part of each day Sept. 19-27; minimum gage height, 1.08 ft (0.329 m) Sept. 21-26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	60	29	29	20	21	21	20	44	135	77	17	22
2	56	30	28	30	22	20	20	45	136	70	17	18
3	53	31	30	23	22	20	20	47	161	64	17	17
4	49	34	28	21	21	20	20	52	213	61	17	15
5	45	32	28	19	21	20	20	63	229	55	16	15
6	43	32	26	17	21	21	22	70	202	51	16	14
7	41	33	24	17	21	22	25	63	166	49	16	13
8	40	34	22	18	21	22	24	58	143	46	15	13
9	39	35	24	19	21	21	24	53	127	44	15	13
10	38	29	26	20	21	21	25	50	134	42	15	12
11	37	28	28	22	21	21	24	47	155	41	15	12
12	36	27	27	25	21	21	23	47	189	40	15	12
13	35	26	26	24	22	21	23	49	210	39	15	12
14	34	25	25	23	22	21	23	60	197	37	16	12
15	34	25	27	23	19	21	23	72	158	30	16	12
16	33	30	29	22	21	22	24	96	140	29	15	11
17	33	35	29	22	22	24	26	106	134	27	15	11
18	32	30	28	22	21	22	29	108	141	26	15	11
19	33	29	27	22	21	22	27	114	184	24	16	10
20	33	27	26	22	20	21	26	130	155	24	17	10
21	32	28	26	21	20	21	24	154	156	23	17	10
22	32	29	27	21	20	21	24	189	146	23	17	10
23	31	30	26	22	20	21	25	236	124	23	17	10
24	31	31	26	22	21	22	24	319	112	22	16	10
25	31	30	25	21	21	21	25	339	105	22	18	10
26	31	29	24	21	21	21	25	326	101	21	17	10
27	31	29	23	24	21	21	27	339	97	21	21	11
28	30	29	22	22	21	22	32	273	89	21	19	11
29	31	29	20	20	---	21	36	201	82	22	17	11
30	30	29	18	19	---	20	40	163	78	21	16	11
31	27	---	16	20	---	20	---	145	---	20	22	---
TOTAL	1141	894	790	664	587	655	750	4058	4399	1115	513	369
MEAN	36.8	29.8	25.5	21.4	21.0	21.1	25.0	131	147	36.0	16.5	12.3
MAX	60	35	30	30	22	24	40	339	229	77	22	22
MIN	27	25	16	17	19	20	20	44	78	20	15	10
AC-FT	2260	1770	1570	1320	1160	1300	1490	8050	8730	2210	1020	732

CAL YR 1978 TOTAL 20523 MEAN 56.2 MAX 390 MIN 15 AC-FT 40710
WTR YR 1979 TOTAL 15935 MEAN 43.7 MAX 339 MIN 10 AC-FT 31610

12331600 CLARK FORK AT DRUMMOND, MT

LOCATION.--Lat 46°39'45", long 113°08'57", in SE¼NW¼SE¼ sec.31, T.11 N., R.12 W., Granite County, Hydrologic Unit 17010201, at bridge on old U.S. Highway 10A, 0.4 mi (0.6 km) southwest of Drummond, 0.9 mi (1.4 km) downstream from Flint Creek, and at mile 417.0 (671.0 km).

DRAINAGE AREA.--2,378 mi^2 (6,159 km^2).

PERIOD OF RECORD.--March 1967 to June 1968, October 1970, June 1971 to September 1972 (occasional discharge measurements and gage heights only). October 1972 to current year.

GAGE.--Nonrecording gage read once or twice daily and crest-stage gage since Aug. 12, 1977. Datum of gage is 3,937.95 ft (1,200.287 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Some regulation by settling ponds on Silver Bow Creek near Anaconda and by Georgetown Lake (see p.765,769) on Flint Creek. Diversions for irrigation of about 86,500 acres (350 km^2) above station.

AVERAGE DISCHARGE.--7 years, 709 ft^3/s (23.34 m^3/s), 597,000 acre-ft/yr (736 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,490 ft^3/s (240 m^3/s) June 20, 1975, gage height, 10.60 ft (3.231 m), from floodmarks; minimum daily, 58 ft^3/s (1.64 m^3/s) Aug. 15, 20, 1973.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 1908 reached a stage of about 15.5 ft (4.72 m) present datum (discharge not determined), from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge observed, 2,710 ft^3/s (76.7 m^3/s) May 27, gage height, 6.67 ft (2.033 m); minimum daily, 119 ft^3/s (3.37 m^3/s) Aug. 8, 9, 15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	911	663	580	390	460	710	703	1600	1450	529	203	435
2	904	690	580	440	490	737	710	1650	1140	512	207	473
3	873	690	590	480	520	710	710	1590	1020	500	196	478
4	851	690	600	540	560	690	696	1600	1040	489	189	489
5	822	683	600	510	570	696	703	1700	1050	420	200	430
6	822	677	530	480	580	836	934	1860	1170	380	176	430
7	793	690	440	490	600	1220	1180	1960	1090	356	166	441
8	786	710	420	510	620	1500	1020	1760	1110	333	119	380
9	765	730	460	520	640	1360	1020	1600	1040	324	119	319
10	765	600	520	540	660	1090	1020	1500	911	310	121	347
11	751	500	550	560	690	1020	958	1360	873	356	121	347
12	730	520	540	550	720	958	889	1240	800	324	136	342
13	717	560	520	550	840	1010	873	1190	815	315	130	395
14	710	600	540	560	1100	966	873	1170	779	306	124	385
15	717	600	560	560	1200	974	836	1270	772	284	119	375
16	717	600	560	500	820	966	911	1500	758	260	179	375
17	696	640	540	480	800	1270	999	1560	758	268	193	370
18	717	650	540	460	760	1080	1100	1660	751	244	210	361
19	703	550	540	490	680	999	1110	1590	758	225	232	342
20	710	480	560	520	670	942	1120	1630	942	189	252	337
21	696	500	560	550	690	904	1040	1580	822	186	280	342
22	703	540	570	540	690	836	1010	1640	873	193	272	333
23	683	570	580	530	680	807	1080	1810	829	203	266	337
24	677	580	570	510	680	829	1040	2140	751	196	264	351
25	657	590	560	500	680	822	1010	2660	683	207	284	370
26	677	600	550	490	680	793	1040	2700	570	193	315	385
27	690	610	540	480	737	765	1070	2710	540	200	328	390
28	683	620	500	480	723	730	1200	2690	500	207	337	435
29	696	610	440	470	---	744	1260	2360	446	221	370	410
30	696	600	380	460	---	751	1450	1890	572	214	324	405
31	677	---	360	450	---	751	---	1610	---	207	489	---
TOTAL	22495	18343	16380	15590	19540	28466	29565	54780	25613	9151	6923	11609
MEAN	742	611	528	503	698	918	986	1767	854	295	223	387
MAX	911	730	600	560	1200	1500	1450	2710	1450	529	489	489
MIN	657	480	360	390	460	690	696	1170	446	186	119	319
AC-FT	45610	36380	32490	30920	38760	56460	58640	108700	50800	18150	13730	23030

CAL YR 1978 TOTAL 307035 MEAN 841 MAX 2550 MIN 63 AC-FT 609000
WTR YR 1979 TOTAL 258955 MEAN 709 MAX 2710 MIN 119 AC-FT 513600

12331900 CLARK FORK NEAR CLINTON, MT

LOCATION.--Lat 46°43'05", long 113°35'17", in SE¼SW¼SE¼ sec.10, T.11 N., R.16 W., Missoula County, Hydrologic Unit 17010201, on downstream side of county road bridge, 4.5 mi (7.2 km) above Rock Creek, 6.5 mi (10.5 km) southeast of Clinton, and at mile 386.6 (622.0 km).

DRAINAGE AREA.--3,515 mi² (9,104 km²).

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: August to September 1979.

INSTRUMENTATION.--Temperature recorder since August 16, 1979.

EXTREMES FOR CURRENT YEAR.--Maximum, 21.5°C August 16-18.

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1							---	---	---	17.5	13.5	15.5
2							---	---	---	19.5	15.0	17.5
3							---	---	---	19.5	15.5	17.5
4							---	---	---	16.5	14.0	15.5
5							---	---	---	17.0	12.5	15.0
6							---	---	---	16.0	13.5	16.0
7							---	---	---	19.5	15.0	17.5
8							---	---	---	20.0	16.0	18.0
9							---	---	---	18.0	15.5	16.5
10							---	---	---	16.5	14.0	15.0
11							---	---	---	16.0	12.0	14.0
12							---	---	---	16.0	11.5	14.0
13							---	---	---	16.5	12.5	14.5
14							---	---	---	16.5	12.0	14.0
15							---	---	---	17.0	12.5	14.5
16							21.5	---	---	17.0	13.0	15.0
17							21.5	17.0	19.5	17.0	13.0	15.0
18							21.5	18.0	19.5	17.0	13.0	15.0
19							19.5	17.0	18.5	16.5	12.5	15.0
20							20.0	17.0	18.0	17.0	13.0	15.0
21							19.0	16.0	17.5	16.5	13.0	15.0
22							20.5	16.5	18.0	16.5	12.5	14.5
23							19.5	16.0	18.0	16.0	12.0	14.5
24							18.5	16.0	17.0	16.0	12.0	14.0
25							20.0	15.5	17.5	14.5	11.5	13.5
26							19.0	16.0	17.5	15.5	13.0	14.0
27							18.5	15.0	17.0	16.0	12.5	14.0
28							18.5	14.5	16.5	15.0	12.5	13.5
29							20.0	15.0	18.0	14.5	11.0	13.0
30							19.5	16.5	18.5	14.5	11.5	13.0
31							18.0	15.5	17.0	---	---	---
MONTH							21.5	14.5	18.0	20.0	11.0	15.0
YEAR	21.5	11.0	16.0									

12332000 MIDDLE FORK ROCK CREEK NEAR PHILIPSBURG, MT

LOCATION.--Lat 46°11'42", long 113°30'00", in SW¼SE¼ sec.8, T.5 N., R.15 W., Granite County, Hydrologic Unit 17010202, on right bank 0.3 mi (0.5 km) upstream from East Fork, 2.3 mi (3.7 km) upstream from West Fork, and 13.7 mi (22.0 km) southwest of Philipsburg.

DRAINAGE AREA.--123 mi^2 (319 km^2).

PERIOD OF RECORD.--September 1937 to current year. Monthly discharges only January to March 1938, published in WSP 1316.

GAGE.--Water-stage recorder. Datum of gage is 5,385.84 ft (1,641.604 m) National Geodetic Vertical Datum of 1929. Sept. 21, 1937, to May 10, 1942, nonrecording gage at site 600 ft (183 m) upstream at different datum. May 11, 1942, to May 11, 1954, nonrecording gages at site 400 ft (122 m) downstream at different datum. May 12, 1954, to Sept. 30, 1955, nonrecording gage at site 300 ft (91 m) upstream at datum 5.74 ft (1.750 m) higher.

REMARKS.--Records good except those for June and July, which are fair, and those for winter period and periods of no gage-height record (Dec. 6 to Mar. 8 and Mar. 13 to Apr. 10), which are poor. Several observations of water temperature were made during the year and are available in files of Helena district office. A few small diversions for irrigation above station.

AVERAGE DISCHARGE.--42 years, 123 ft^3/s (3.483 m^3/s), 13.58 in/yr (345 mm/yr), 89,110 acre-ft/yr (110 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,680 ft^3/s (47.6 m^3/s) June 16, 1974, gage height, 5.58 ft (1.701 m); minimum daily, 5.3 ft^3/s (0.15 m^3/s) Feb. 9, 1953.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 450 ft^3/s (12.7 m^3/s) and maximums (*):

Date	Time	Discharge		Gage height		Date	Time	Discharge		Gage height	
		(ft^3/s)	(m^3/s)	(ft)	(m)			(ft^3/s)	(m^3/s)	(ft)	(m)
May 27	0500	*881	24.9	*4.42	1.347	June 14	0400	573	16.2	3.85	1.173
June 6	0400	557	15.8	3.82	1.164						

Minimum daily discharge, 15 ft^3/s (0.42 m^3/s) Dec. 31.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	81	50	32	20	32	40	40	110	376	226	61	67
2	76	47	32	25	34	39	38	117	356	196	57	58
3	70	46	31	24	36	38	36	123	380	173	56	54
4	68	46	31	23	38	39	38	143	454	163	57	54
5	65	47	30	22	40	40	40	178	526	153	57	52
6	64	47	28	21	40	41	42	184	535	151	53	49
7	62	45	26	23	39	42	44	164	454	156	51	47
8	60	44	24	25	38	43	45	156	397	144	49	45
9	59	48	28	27	40	42	46	140	356	140	50	44
10	58	27	32	29	42	41	46	129	352	127	49	44
11	57	27	38	30	44	42	45	125	384	123	49	44
12	56	26	36	31	46	42	44	128	450	117	49	45
13	55	26	34	32	48	43	53	135	521	109	51	45
14	55	28	32	33	46	43	44	162	537	101	56	44
15	54	30	34	32	44	43	45	192	463	99	55	43
16	54	40	35	31	42	44	46	253	414	96	53	42
17	53	50	36	30	43	45	57	288	393	90	52	42
18	53	45	35	32	44	45	66	311	450	85	57	41
19	52	35	34	33	43	45	56	339	482	84	65	40
20	51	25	35	34	42	44	52	370	414	80	69	39
21	51	30	36	35	41	42	51	419	410	79	75	39
22	51	34	37	36	40	40	51	497	463	80	73	39
23	50	38	38	37	39	41	57	589	405	87	63	38
24	49	40	38	36	39	42	56	749	397	77	63	38
25	49	42	35	32	40	43	54	760	384	73	66	38
26	48	40	30	28	41	44	55	766	360	67	62	38
27	47	38	25	30	42	45	61	840	344	65	67	40
28	48	36	22	32	41	45	77	766	318	70	70	39
29	49	34	19	28	---	45	91	605	279	76	62	39
30	47	33	17	26	---	44	100	487	252	69	57	39
31	43	---	15	30	---	42	---	423	---	64	67	---
TOTAL	1735	1144	955	907	1144	1314	1576	10648	12306	3422	1821	1326
MEAN	56.0	38.1	30.8	29.3	40.9	42.4	52.5	343	410	110	58.7	44.2
MAX	81	50	38	37	48	45	100	840	537	228	75	67
MIN	43	25	15	20	32	38	36	110	252	64	49	38
CFSM	.46	.31	.25	.24	.33	.35	.43	2.79	3.33	.89	.48	.36
IN.	.52	.35	.29	.27	.35	.40	.48	3.22	3.72	1.03	.55	.40
AC-FT	3440	2270	1890	1800	2270	2610	3130	21120	24410	6790	3610	2630

CAL YR 1978 TOTAL 58251 MEAN 160 MAX 1120 MIN 15 CFSM 1.30 IN 17.62 AC-FT 115500
WTR YR 1979 TOTAL 38298 MEAN 105 MAX 840 MIN 15 CFSM .85 IN 11.58 AC-FT 75960

12334510 ROCK CREEK NEAR CLINTON, MT

LOCATION.--Lat 46°43'21", long 113°40'56", in NE¼SW¼ sec.12, T.11 N., R.17 W., Missoula County, Hydrologic Unit 17010202, on left bank 100 ft (30 m) downstream from private road bridge, 0.2 mi (0.3 km) upstream from mouth, and 3.7 mi (6.0 km) southeast of Clinton.

DRAINAGE AREA.--885 mi^2 (2,292 km^2).

PERIOD OF RECORD.--October 1972 to current year.

GAGE.--Water-stage recorder. Datum of gage is 3,519.46 ft (1,072.731 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for winter period or periods of no gage-height record (Dec. 27 to Jan. 30 and Feb. 1 to Mar. 25), which are poor. Several observations of water temperature were made during the year and are available in files of Helena district office. Some regulation by East Fork Rock Creek Reservoir (see p. 765.769). During irrigation season water is diverted from East Fork Rock Creek in sec.5, T.4 N., R.14 W., 500 ft (152 m) below Rock Creek Dam, through a canal into Trout Creek, thence into Flint Creek (see schematic diagram, p. 680). Diversions for irrigation of about 16,100 acres (65.2 km^2).

AVERAGE DISCHARGE.--7 years, 595 ft^3/s (16.85 m^3/s), 9.13 in/yr (232 mm/yr), 431,100 acre-ft/yr (532 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,520 ft^3/s (156 m^3/s) June 20, 1975, gage height, 7.49 ft (2.283 m); minimum, 45 ft^3/s (1.27 m^3/s) Jan. 3, 1974, gage height, 1.65 ft (0.503 m).

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1972 reached a stage of 8.5 ft (2.59 m), from floodmark, discharge, 6,500 ft^3/s (184 m^3/s); local residents report flood of 1927 reached a stage of about 9.5 ft (2.90 m).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,610 ft^3/s (45.6 m^3/s) and maximums(*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
May 27	1630	*3,390	96.0	*6.82	2.079	June 16	1315	2,010	56.9	5.75	1.753

Minimum daily discharge, 100 ft^3/s (2.83 m^3/s) Dec. 31.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	301	204	214	130	160	190	224	803	1750	726	331	363
2	292	217	197	160	170	180	214	817	1610	696	318	335
3	284	224	188	150	160	170	204	817	1620	649	305	297
4	276	224	207	140	190	180	207	865	1770	629	296	276
5	272	224	214	130	200	190	214	1010	1930	596	284	272
6	268	217	191	120	200	200	235	1180	1970	558	268	261
7	264	217	170	130	190	210	284	1110	1780	540	257	249
8	261	227	160	140	180	210	301	975	1580	516	238	242
9	253	242	150	150	190	200	301	858	1420	493	231	235
10	249	200	200	160	200	200	309	770	1330	476	227	227
11	249	190	253	170	210	210	288	726	1350	443	214	227
12	245	200	245	180	220	210	272	714	1450	433	214	224
13	245	210	190	190	230	220	268	732	1550	422	217	220
14	245	190	180	200	220	220	261	851	1610	407	236	217
15	242	180	200	200	210	220	261	1040	1470	397	257	197
16	242	190	190	190	200	230	276	1400	1330	382	245	181
17	238	200	180	180	210	230	326	1650	1250	363	238	172
18	235	190	200	190	220	230	438	1690	1290	363	231	172
19	235	180	220	200	210	230	412	1730	1430	354	249	169
20	231	170	224	210	200	220	354	1760	1260	349	264	169
21	231	160	224	220	190	220	326	1850	1170	335	280	167
22	231	180	220	210	180	230	331	2110	1240	331	305	164
23	227	200	217	200	170	230	377	2380	1120	335	288	164
24	227	210	217	190	180	240	377	2760	1010	322	284	161
25	227	210	200	180	190	250	372	2990	953	309	288	161
26	227	200	150	160	200	259	377	3030	901	309	280	164
27	224	197	140	170	210	257	407	3200	844	305	297	164
28	224	200	130	180	200	253	499	3100	817	309	297	167
29	227	197	120	170	---	261	602	2710	763	313	288	167
30	227	204	110	160	---	245	714	2270	744	335	272	169
31	220	---	100	155	---	231	---	1970	---	349	313	---
TOTAL	7619	6054	5801	5315	5510	6826	10031	49868	40312	13344	8314	6353
MEAN	246	202	187	171	197	220	334	1609	1344	430	268	212
MAX	301	242	253	220	230	261	714	3200	1970	726	331	363
MIN	220	160	100	120	160	170	204	714	744	305	214	161
CFSM	.28	.23	.21	.19	.22	.25	.38	1.82	1.52	.49	.30	.24
IN.	.32	.25	.24	.22	.23	.29	.42	2.10	1.69	.56	.35	.27
AC-FT	15110	12010	11510	10540	10930	13540	19900	98910	79960	26470	16490	12600

CAL YR 1978 TOTAL 243228 MEAN 666 MAX 3550 MIN 100 CFSM .75 IN 10.22 AC-FT 482400
WTR YR 1979 TOTAL 165347 MEAN 453 MAX 3200 MIN 100 CFSM .51 IN 6.95 AC-FT 328000

12335500 NEVADA CREEK ABOVE RESERVOIR, NEAR FINN, MT

LOCATION(REVISED).--Lat 46°46'42", long 112°46'00", in SW¼NW¼SW¼ sec.20, T.12 N., R.9 W., Powell County, Hydrologic Unit 17010203, on right bank 0.7 mi (1.1 km) upstream from Nevada Lake, 1.1 mi (1.8 km) downstream from Gallagher Creek, and 4.0 mi (6.4 km) west of Finn.

DRAINAGE AREA.--116 mi^2 (300 km^2).

PERIOD OF RECORD.--April 1939 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 4,660 ft (1,420 m), from river-profile map. Prior to Apr. 30, 1942, nonrecording gage at site 1.0 mi (1.6 km) downstream at different datum. Apr. 30, 1942, to July 26, 1953, water-stage recorder at site 0.2 mi (0.3 km) downstream at different datum. July 26, 1953, to Nov. 6, 1978, water-stage recorder at site 0.8 mi (1.3 km) upstream at different datum.

REMARKS.--Records good except those for winter period, which are poor. Diversions for irrigation of about 2,900 acres (11.7 km^2) above station. Several observations of water temperature were made during the year and are available in files of the Helena district office.

AVERAGE DISCHARGE.--40 years, 38.3 ft^3/s (1.085 m^3/s), 27,750 acre-ft/yr (34.2 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,800 ft^3/s (51.0 m^3/s) June 2, 1953, gage height, 6.00 ft (1.829 m), site and datum then in use, from rating curve extended above 400 ft^3/s (11.3 m^3/s) on basis of inflow-outflow study of Nevada Lake; maximum gage height, 7.40 ft (2.256 m) May 29, 1953, site and datum then in use (backwater from diversion dam); minimum discharge, probably less than 2.0 ft^3/s (0.057 m^3/s) at times in 1944, 1957, 1972 and 1973.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 365 ft^3/s (10.3 m^3/s) May 24, gage height, 3.37 ft (1.027 m); minimum daily, 4.0 ft^3/s (0.11 m^3/s) Jan. 31.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	18	16	4.9	4.7	22	41	113	122	24	14	9.8
2	14	16	10	5.2	5.4	24	39	98	109	22	13	8.7
3	14	15	12	6.0	6.0	20	38	89	111	21	13	8.7
4	14	14	14	7.0	6.6	21	40	93	124	25	12	8.2
5	14	15	13	6.0	7.0	24	50	111	132	20	11	9.8
6	14	15	12	5.4	8.0	40	60	132	132	18	10	9.8
7	14	14	11	5.0	8.5	50	76	122	120	18	10	8.7
8	14	19	10	5.5	7.0	55	65	104	113	16	13	8.2
9	14	18	11	6.0	7.5	50	60	90	91	16	13	8.2
10	14	13	12	6.5	8.5	45	63	82	82	15	13	8.2
11	13	12	12	7.0	10	47	60	72	77	13	12	8.2
12	13	13	11	6.6	12	50	54	68	70	13	12	7.8
13	13	14	9.8	6.6	14	55	52	70	65	13	12	8.2
14	13	14	9.0	6.3	17	59	51	83	63	12	11	7.8
15	13	15	9.6	6.2	14	65	55	109	58	11	10	7.8
16	14	16	10	6.0	12	63	64	170	98	11	9.8	7.8
17	14	17	9.0	6.0	13	120	70	219	77	10	9.2	7.3
18	15	18	9.4	6.2	14	96	75	208	61	11	10	7.3
19	15	17	9.8	6.4	16	92	72	200	54	11	10	9.2
20	14	16	10	6.6	15	90	64	208	51	11	11	11
21	14	16	10	7.0	14	71	54	205	46	12	14	8.2
22	14	16	10	8.0	14	61	62	250	49	11	15	7.8
23	14	16	10	7.5	12	61	76	265	37	12	11	7.3
24	14	16	11	6.5	13	93	59	332	34	12	12	7.3
25	14	15	11	6.0	14	80	52	339	31	11	11	7.8
26	14	15	10	5.6	15	51	58	311	29	12	10	7.3
27	14	15	8.5	5.2	17	44	64	308	29	11	10	7.3
28	14	15	6.4	4.9	20	40	77	288	25	15	10	6.9
29	14	16	5.0	4.7	---	44	87	236	23	18	9.8	6.9
30	14	17	4.5	4.3	---	43	95	177	21	15	8.7	6.1
31	15	---	4.7	4.0	---	42	---	147	---	13	9.8	---
TOTAL	432	468	311.7	185.1	325.2	1718	1833	5302	2134	453	350.3	243.6
MEAN	13.9	15.6	10.1	5.97	11.6	55.4	61.1	171	71.1	14.6	11.3	8.12
MAX	15	19	16	8.0	20	120	95	339	132	25	15	11
MIN	13	12	4.5	4.0	4.7	20	38	68	21	10	8.7	6.1
AC-FT	857	928	618	367	645	3410	3640	10520	4230	899	695	483

CAL YR 1978 TOTAL 17557.8 MEAN 48.1 MAX 349 MIN 3.5 AC-FT 34830
WTR YR 1979 TOTAL 13755.9 MEAN 37.7 MAX 339 MIN 4.0 AC-FT 27280

12338690 MONTURE CREEK NEAR OVANDO, MT

LOCATION.--Lat 47°02'44", long 113°11'23", in SW¼NE¼NW¼ sec.24, T.15 N., R.13 W., Powell County, Hydrologic Unit 17010203, on right bank 450 ft (137 m) upstream from bridge on State Highway 200, 0.15 mi (0.24 km) downstream from Dick Creek, 3.2 mi (5.1 km) northwest of Ovando, and 3.7 mi (6.0 km) upstream from mouth.

DRAINAGE AREA.--140 mi² (363 km²).

PERIOD OF RECORD.--September 1973 to current year.

GAGE.--Water-stage recorder. Datum of gage is 3,987.13 ft (1,215.277 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for winter period, which are poor. Diversions for irrigation of about 1,700 acres (6.88 km²) above station. Several observations of water temperature were made during the year and are available in files of the Helena district office.

AVERAGE DISCHARGE.--6 years, 196 ft³/s (5.551 m³/s), 142,000 acre-ft/yr (175 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,120 ft³/s (60.0 m³/s) June 16, 1974, gage height, 4.18 ft (1.274 m); minimum daily, 20 ft³/s (0.57 m³/s) Jan. 5, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,610 ft³/s (45.6 m³/s) May 27, gage height, 3.84 ft (1.170 m); minimum daily, 24 ft³/s (0.68 m³/s) Jan. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	52	40	36	27	26	34	55	361	676	269	79	68
2	52	40	34	28	26	30	54	376	661	256	77	62
3	51	41	35	29	26	28	52	386	754	237	76	60
4	51	41	35	30	27	30	54	426	914	224	76	59
5	51	41	36	28	28	33	78	491	968	209	75	57
6	49	41	35	29	29	34	84	588	941	199	72	57
7	48	41	34	29	28	38	103	540	793	195	73	57
8	48	43	32	30	27	40	105	475	675	180	72	55
9	47	44	33	31	26	36	120	413	612	171	72	54
10	47	40	34	33	26	36	130	364	609	162	70	54
11	47	34	34	34	27	35	136	335	661	153	69	53
12	47	35	34	34	28	36	133	335	760	147	69	52
13	47	36	32	33	30	39	125	349	844	141	69	51
14	47	37	28	33	32	36	120	416	817	134	68	51
15	47	38	31	32	30	38	125	525	695	127	66	49
16	47	40	30	32	26	39	130	778	611	123	65	49
17	47	42	29	30	26	47	148	924	567	117	62	48
18	47	43	30	30	27	51	168	875	540	112	62	48
19	47	42	30	31	27	52	158	825	515	107	62	49
20	47	41	31	33	27	54	148	836	479	107	62	49
21	47	41	32	33	26	52	139	867	445	104	63	49
22	45	40	33	34	26	55	139	1020	426	101	68	48
23	44	40	33	33	25	57	145	1160	406	102	63	48
24	44	40	34	32	26	59	138	1470	389	96	62	48
25	44	39	33	30	26	60	134	1480	371	94	63	48
26	42	38	33	29	33	59	133	1420	359	92	62	49
27	41	38	32	28	37	55	140	1530	341	90	63	49
28	41	38	31	27	38	52	173	1420	323	88	61	48
29	42	38	26	26	---	52	217	1120	299	88	60	48
30	41	38	25	24	---	52	293	895	282	85	58	48
31	41	---	26	25	---	54	---	755	---	81	72	---
TOTAL	1438	1190	991	937	786	1573	3877	23755	17735	4391	2091	1565
MEAN	46.4	39.7	32.0	30.2	28.1	44.3	129	766	591	142	67.5	52.2
MAX	52	44	36	34	38	60	293	1530	968	269	79	68
MIN	41	34	25	24	25	28	52	335	282	81	58	48
AC-FT	2850	2360	1970	1860	1560	2720	7690	47120	35180	8710	4150	3100

CAL YR 1978 TOTAL 77666 MEAN 213 MAX 1350 MIN 25 AC-FT 154100
WTR YR 1979 TOTAL 60131 MEAN 165 MAX 1530 MIN 24 AC-FT 119300

12339450 CLEARWATER RIVER NEAR CLEARWATER, MT

LOCATION.--Lat 47°01'11", long 113°23'16", in NW¼NW¼NW¼ sec.33, T.15 N., R.14 W., Missoula County, Hydrologic Unit 17010203, Clearwater State Forest, on left bank 700 ft (213 m) upstream from Blanchard Lake, 1.3 mi (2.1 km) northwest of Clearwater, and 4.9 mi (7.9 km) upstream from mouth.

DRAINAGE AREA.--345 mi² (894 km²).

PERIOD OF RECORD.--October 1974 to current year.

GAGE.--Water-stage recorder. Datum of gage is 3,814.23 ft (1,162.577 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for period of no gage-height record, July 4 to Aug. 14, which are fair and for winter period, which are poor. A few minor diversions for irrigation above station. During summer months Elbow Lake, 1.5 mi (2.4 km) upstream, maybe regulated for recreational purposes. Several observations of water temperature were made during the year and are available in files of Helena district office.

AVERAGE DISCHARGE.--5 years (1975-79), 316 ft³/s (8.949 m³/s), 12.44 in/yr (316 mm/yr), 228,900 acre-ft/yr (282 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,900 ft³/s (82.1 m³/s) May 17, 1975, gage height, 7.85 ft (2.393 m); minimum, 27 ft³/s (0.76 m³/s) Aug. 25, 26, 1977, gage height, 3.69 ft (1.125 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,930 ft³/s (54.7 m³/s) May 7, gage height, 7.07 ft (2.155 m); minimum, 40 ft³/s (1.13 m³/s) Sept. 26-30, gage height, 3.83 ft (1.167 m), but may have been less during period of ice effect Dec. 25 to Feb. 6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	76	54	80	60	59	67	150	1390	1080	298	61	83
2	75	53	78	62	59	66	153	1550	970	278	60	86
3	74	76	80	64	60	62	150	1630	918	263	58	86
4	73	125	81	65	62	63	148	1670	868	252	57	82
5	72	138	80	64	63	64	153	1710	910	230	56	78
6	70	137	78	62	62	65	156	1800	925	215	55	75
7	69	132	77	60	62	70	167	1910	910	200	54	72
8	68	125	76	60	60	73	185	1860	845	190	53	70
9	67	122	78	60	58	81	218	1700	776	178	52	68
10	66	112	80	62	59	79	263	1510	724	167	52	65
11	65	95	80	64	60	81	302	1330	704	157	51	62
12	63	78	80	66	63	86	323	1190	717	148	50	60
13	62	70	77	66	72	89	362	1130	763	139	49	59
14	62	65	73	66	72	92	358	1090	790	130	49	56
15	60	60	75	65	73	94	362	1110	763	123	49	56
16	60	56	77	63	74	96	367	1200	698	117	47	54
17	60	57	78	64	75	100	395	1340	636	110	46	51
18	59	59	76	66	75	104	457	1430	601	104	46	50
19	58	67	75	67	75	107	556	1430	589	99	44	49
20	57	77	76	69	77	108	624	1390	584	94	43	47
21	57	88	76	70	76	109	654	1370	550	90	45	45
22	57	91	76	69	68	111	673	1370	518	86	51	44
23	56	94	77	68	66	113	698	1400	492	82	57	44
24	55	93	78	67	68	115	711	1500	467	79	58	43
25	54	90	80	66	71	120	698	1660	442	76	59	41
26	54	88	75	65	69	123	704	1710	423	73	59	41
27	54	85	70	64	68	130	730	1710	390	70	58	41
28	53	85	67	62	68	139	817	1680	362	68	57	41
29	54	83	64	60	---	145	978	1550	336	66	56	40
30	55	82	62	59	---	149	1190	1380	310	64	56	41
31	56	---	60	58	---	150	---	1220	---	62	67	---
TOTAL	1921	2639	2340	1983	1874	3051	13702	45920	20081	4308	1655	1730
MEAN	62.0	88.0	75.5	64.0	66.9	98.4	457	1481	669	139	53.4	57.7
MAX	76	138	81	70	77	150	1190	1910	1080	298	67	86
MIN	53	53	60	58	58	62	148	1090	310	62	43	40
AC-FT	3810	5230	4640	3930	3720	6050	27180	91080	39830	8540	3280	3430

CAL YR 1978 TOTAL 127099 MEAN 348 MAX 1600 MIN 53 AC-FT 252100
WTR YR 1979 TOTAL 101204 MEAN 277 MAX 1910 MIN 40 AC-FT 200700

12340000 BLACKFOOT RIVER NEAR BONNER, MT

LOCATION.--Lat 46°53'59", long 113°45'20", in SE¼SE¼NW¼ sec.9, T.13 N., R.17 W., Missoula County, Hydrologic Unit 17010203, Lolo National Forest, on right bank, 5.0 mi (8.0 km) downstream from Union Creek, 5.6 mi (9.0 km) northeast of Bonner, and 7.3 mi (11.7 km) upstream from mouth.

DRAINAGE AREA.--2,290 mi² (5,931 km²).

PERIOD OF RECORD.--July to November 1898, March 1899 to September 1901, May 1903 to January 1905, March to October 1905, October 1939 to current year. Monthly discharge only for some periods, published in WSP 1316. Published as "at Bonner" 1898-99 and as Big Blackfoot River near Bonner 1903-05.

REVISED RECORDS.--WSP 1216: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 3,344.76 ft (1,019.483 m) National Geodetic Vertical Datum of 1929. July 7, 1898, to June 30, 1901, and May 15, 1903, to Oct. 31, 1905, nonrecording gage at site 7 mi (11 km) downstream at different datum. Oct. 4, 1939, to Sept. 30, 1955, nonrecording gage at site 1.3 mi (2.1 km) downstream at datum 21.92 ft (6.651 m) lower.

REMARKS.--Records excellent except those for winter period, which are poor. Diversions for irrigation of about 20,000 acres (80.9 km²) above station.

AVERAGE DISCHARGE.--43 years (water years 1900-01, 1904, 1940-79), 1,653 ft³/s (46.82 m³/s), 9.80 in/yr (249 mm/yr), 1,198,000 acre-ft/yr (1.48 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 19,200 ft³/s (544 m³/s) June 10, 1964, gage height, 10.89 ft (3.319 m); minimum daily, 200 ft³/s (5.66 m³/s) Jan. 4, 5, 1950.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 10,800 ft³/s (306 m³/s) May 27, gage height, 8.33 ft (2.539 m); minimum daily, 250 ft³/s (7.08 m³/s) Dec. 31.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	732	588	650	260	540	520	775	3120	5710	2060	753	781
2	722	606	640	280	560	510	742	3430	5250	2000	728	765
3	718	588	660	300	580	500	716	3540	5300	1890	716	733
4	716	613	680	320	600	540	720	3650	5880	1800	701	707
5	710	637	650	300	620	580	805	3930	6380	1720	693	691
6	701	631	550	280	610	600	968	4440	6460	1660	682	682
7	690	631	450	260	600	618	1150	4730	5940	1590	677	673
8	690	637	500	260	590	666	1210	4550	5250	1510	668	661
9	684	644	550	280	600	679	1250	4190	4700	1450	656	646
10	677	606	600	300	610	666	1330	3820	4360	1410	642	630
11	670	520	650	350	620	652	1320	3490	4380	1330	638	630
12	657	490	550	400	630	683	1290	3290	4760	1280	646	626
13	657	570	500	390	640	719	1270	3260	5160	1230	638	617
14	657	541	550	380	600	728	1260	3430	5280	1190	652	611
15	657	525	600	370	550	746	1250	3900	4870	1130	659	605
16	650	565	550	360	560	780	1280	5020	4390	1110	660	604
17	644	593	520	350	570	832	1420	6240	4100	1060	648	601
18	644	569	550	400	580	900	1630	6590	3960	1040	642	592
19	637	450	600	450	580	947	1670	6570	3850	1000	641	587
20	619	400	650	500	550	973	1660	6590	3660	947	655	582
21	613	350	640	550	500	943	1630	6690	3450	959	698	578
22	606	450	620	600	480	939	1640	7200	3250	944	700	573
23	606	550	600	580	460	947	1720	7960	3090	934	715	556
24	606	600	580	570	480	974	1710	9260	2930	898	720	545
25	600	650	560	560	500	1070	1680	9960	2800	875	734	541
26	594	700	540	570	520	1010	1690	10100	2700	871	713	544
27	594	690	520	580	540	922	1760	10600	2580	857	701	547
28	594	680	450	590	530	812	1940	10200	2430	841	700	542
29	594	670	350	550	---	830	2230	9000	2270	832	695	563
30	594	660	300	500	---	813	2650	7620	2130	826	675	541
31	588	---	250	520	---	795	---	6480	---	794	743	---
TOTAL	20121	17404	17060	12960	15800	23908	42366	182850	127290	38058	21189	18554
MEAN	649	580	550	418	564	771	1412	5898	4243	1228	684	618
MAX	732	700	680	600	640	1070	2650	10600	6460	2060	753	781
MIN	588	350	250	260	460	500	716	3120	2130	794	638	541
CFSM	.28	.25	.24	.18	.25	.34	.62	2.58	1.85	.54	.30	.27
IN.	.33	.28	.28	.21	.26	.39	.69	2.97	2.07	.62	.34	.30
AC-FT	39910	34520	33840	25710	31340	47420	84030	362700	252500	75490	42030	36800

CAL YR 1978 TOTAL 649163 MEAN 1779 MAX 8190 MIN 220 CFSM .78 IN 10.55 AC-FT 1288000
WTR YR 1979 TOTAL 537560 MEAN 1473 MAX 10600 MIN 250 CFSM .64 IN 8.73 AC-FT 1066000

12340500 CLARK FORK ABOVE MISSOULA, MT

LOCATION.--Lat 46°52'38", long 113°55'53", in NW¼NW¼NW¼ sec.19, T.13 N., R.18 W., Missoula County, Hydrologic Unit 17010204, on right bank 0.2 mi (0.3 km) downstream from county road bridge, 2.8 mi (4.5 km) east of Missoula, 2.8 mi (4.5 km) downstream from Milltown Dam, 3.0 mi (4.8 km) downstream from Blackfoot River, and at mile 361.6 (581.8 km).

DRAINAGE AREA.--5,999 mi^2 (15,537 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1929 to current year. Monthly discharge only for some period, published in WSP 1316.

REVISED RECORDS.--WSP 1042: 1936. WSP 1152: 1942. WSP 1246: 1929-30, 1935, drainage area. WSP 1316: 1932-33.

GAGE.--Water-stage recorder. Datum of gage is 3,198.30 ft (974.842 m) National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Prior to May 27, 1929, nonrecording gage.

REMARKS.--Water-discharge records excellent except those for winter period, which are fair. Diurnal fluctuation caused by powerplant at Bonner. Diversions for irrigation of about 120,000 acres (490 km^2) above station.

AVERAGE DISCHARGE.--50 years, 3,020 ft^3/s (85.53 m^3/s), 2,188,000 acre-ft/yr (2.70 km^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 32,300 ft^3/s (915 m^3/s) June 21, 1975, gage height, 13.75 ft (4.191 m); minimum, 115 ft^3/s (3.26 m^3/s) Oct. 25, 1943, gage height, 0.64 ft (0.195 m), powerplant shutdown; minimum daily, 340 ft^3/s (9.63 m^3/s) Sept. 27, 1937.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1908 reached a discharge of 48,000 ft^3/s (1,400 m^3/s), furnished by The Montana Power Company.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 17,500 ft^3/s (496 m^3/s) May 27, gage height, 9.77 ft (2.978 m); minimum discharge, 496 ft^3/s (14.0 m^3/s) Nov. 11, gage height, 1.80 ft (0.549 m), powerplant shutdown.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2130	1650	1740	680	1200	1470	1990	5800	9380	3480	1400	1680
2	2100	1640	1740	700	1250	1420	1890	6370	8530	3460	1320	1630
3	2070	1650	1660	720	1250	1350	1850	6400	8310	3240	1320	1540
4	2040	1670	1640	750	1300	1320	1800	6540	8810	3100	1290	1490
5	2000	1710	1710	800	1300	1380	1910	7060	9480	2970	1270	1460
6	1970	1670	1400	900	1350	1530	2170	7930	9770	2860	1220	1450
7	1940	1660	1200	920	1400	1890	2530	8300	9250	2760	1210	1430
8	1920	1720	1100	950	1400	2380	2810	7780	8360	2630	1170	1400
9	1890	1770	1200	920	1400	2510	2790	7170	7590	2520	1130	1360
10	1870	1670	1300	950	1500	2280	2940	6560	6990	2440	1100	1320
11	1840	1260	1600	1100	1550	2180	2890	6040	6860	2320	1080	1300
12	1770	1250	1600	1300	1600	2190	2780	5720	7230	2380	1060	1300
13	1780	1420	1500	1450	1800	2360	2710	5590	7640	1960	1060	1290
14	1790	1510	1400	1500	2500	2290	2690	5780	7910	2060	1120	1280
15	1790	1360	1500	1500	2250	2240	2640	6530	7480	1950	1160	1270
16	1760	1420	1600	1500	2100	2330	2680	8040	6800	1910	1180	1240
17	1750	1580	1600	1450	1800	2600	2940	9700	6370	1890	1170	1190
18	1750	1640	1500	1500	1750	2720	3420	10200	6210	1820	1150	1190
19	1760	1290	1500	1550	1700	2610	3530	10200	6260	1740	1180	1180
20	1690	1030	1550	1550	1700	2580	3450	10200	6070	1650	1210	1160
21	1710	800	1550	1600	1600	2460	3360	10400	5730	1620	1310	1140
22	1680	1200	1600	1650	1550	2390	3290	11000	5580	1580	1370	1140
23	1670	1500	1600	1600	1550	2360	3450	12200	5340	1580	1360	1120
24	1670	1700	1600	1600	1400	2360	3550	13900	4970	1550	1350	1100
25	1660	1800	1500	1500	1400	2490	3420	15500	4810	1520	1380	1100
26	1670	1800	1400	1450	1450	2500	3420	15800	4550	1490	1380	1130
27	1630	1740	1300	1450	1500	2290	3530	16300	4290	1440	1380	1140
28	1660	1730	1300	1450	1500	2140	3830	16200	3490	1460	1400	1140
29	1660	1730	1100	1400	---	2090	4510	14400	3800	1500	1410	1180
30	1640	1670	800	1300	---	2110	5090	12300	3590	1460	1360	1150
31	1650	---	700	1200	---	2030	---	10600	---	1460	1470	---
TOTAL	55910	46260	44490	38890	44050	66850	89860	296510	201500	65800	38990	38500
MEAN	1804	1542	1435	1255	1573	2156	2995	9565	6717	2123	1258	1283
MAX	2130	1800	1740	1650	2500	2720	5090	16300	9770	3480	1470	1680
MIN	1630	800	700	680	1200	1320	1800	5590	3490	1440	1060	1100
AC-FT	110900	91760	88250	77140	87370	132600	178200	588100	399700	130500	77340	76360

CAL YR 1978 TOTAL 1275199 MEAN 3494 MAX 14000 MIN 700 AC-FT 2529000
WTR YR 1979 TOTAL 1027610 MEAN 2815 MAX 16300 MIN 680 AC-FT 2038000

12340500 CLARK FORK ABOVE MISSOULA, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: June 1977 to current year.

INSTRUMENTATION.--Temperature recorder since June 20, 1977.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum, 22.0°C July 23, 24, 1977, minimum, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum, 21.5°C July 20, 21; minimum, 0.0°C on many days during November to March.

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	11.5	10.0	10.5	3.0	2.5	2.5	.0	.0	.0	.0	.0	.0
2	10.0	9.5	10.0	3.0	2.0	2.5	.0	.0	.0	.0	.0	.0
3	10.0	9.0	9.0	4.5	3.0	4.0	.0	.0	.0	.0	.0	.0
4	9.5	8.5	9.0	5.5	5.0	5.0	.0	.0	.0	.0	.0	.0
5	9.5	8.5	9.0	5.0	4.0	4.5	.0	.0	.0	.0	.0	.0
6	9.0	8.5	9.0	4.0	3.0	3.5	.0	.0	.0	.0	.0	.0
7	9.0	8.5	9.0	4.0	3.0	3.5	.0	.0	.0	.0	.0	.0
8	10.0	9.0	9.5	5.0	4.0	5.0	.0	.0	.0	.0	.0	.0
9	10.0	9.0	9.5	5.0	3.0	4.5	.0	.0	.0	.0	.0	.0
10	10.0	9.5	9.5	3.0	.0	1.0	.0	.0	.0	.0	.0	.0
11	9.5	9.5	9.5	.5	.0	.0	.0	.0	.0	.0	.0	.0
12	9.5	8.5	9.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13	8.5	7.0	7.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
14	7.0	6.5	7.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
15	7.5	6.5	7.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
16	8.0	7.5	7.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
17	8.5	7.5	8.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
18	8.5	8.0	8.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
19	1.0	7.5	7.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
20	7.5	7.0	7.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
21	8.5	7.5	8.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
22	7.5	6.5	7.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
23	6.5	6.0	6.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
24	7.0	6.5	6.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
25	6.5	5.5	6.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
26	6.0	5.0	5.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
27	5.0	4.5	4.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
28	1.0	5.0	5.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
29	1.5	5.5	6.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
30	1.5	5.0	5.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
31	5.0	3.5	4.0	---	---	---	.0	.0	.0	.0	.0	.0
MONTH	11.5	3.5	7.5	5.5	.0	1.0	.0	.0	.0	.0	.0	.0

12340500 CLARK FORK ABOVE MISSOULA, MT--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	.0	.0	.0	1.0	.5	1.0	4.5	4.0	4.0	10.0	8.5	9.0
2	.0	.0	.0	1.0	.5	1.0	4.0	3.5	4.0	10.0	7.0	8.5
3	.0	.0	.0	1.0	.5	.5	4.0	3.5	4.0	11.0	8.0	9.5
4	.0	.0	.0	1.0	.5	1.0	4.5	3.5	4.0	10.5	9.5	9.5
5	.0	.0	.0	2.0	1.0	1.5	7.0	4.5	5.5	9.0	8.5	9.0
6	.0	.0	.0	2.0	1.5	2.0	7.5	6.5	7.0	9.0	7.5	8.0
7	.0	.0	.0	2.0	1.5	1.5	7.5	6.5	7.0	9.0	7.0	8.0
8	.0	.0	.0	1.5	1.0	1.5	7.5	6.0	6.5	8.5	7.5	8.0
9	.0	.0	.0	1.5	.0	1.0	7.0	6.0	6.5	7.5	6.5	7.0
10	.0	.0	.0	2.0	.5	1.5	5.5	4.5	5.0	7.5	6.0	7.0
11	.0	.0	.0	2.5	1.0	1.5	7.0	4.5	5.0	10.0	7.0	8.5
12	.0	.0	.0	3.0	2.0	2.5	7.5	5.5	6.5	10.0	8.0	9.0
13	.0	.0	.0	3.5	2.0	2.5	7.5	6.0	6.5	11.0	8.5	9.5
14	.0	.0	.0	3.5	2.0	3.0	7.0	5.5	6.0	11.5	9.0	10.0
15	.0	.0	.0	4.0	2.5	3.5	8.0	6.5	7.0	12.5	10.0	11.0
16	.0	.0	.0	4.0	3.5	3.5	9.0	7.0	7.5	12.0	9.5	10.5
17	.0	.0	.0	4.5	3.5	4.0	9.5	8.0	8.5	10.0	8.5	9.5
18	.0	.0	.0	4.5	3.5	4.0	9.5	7.5	8.0	10.0	9.0	9.5
19	.0	.0	.0	5.0	4.0	4.5	7.5	6.0	6.5	11.0	9.0	10.0
20	.0	.0	.0	5.0	3.5	4.0	7.5	6.0	6.5	11.5	9.5	10.5
21	.0	.0	.0	5.5	4.0	4.5	8.5	5.5	7.0	12.0	10.0	11.0
22	.0	.0	.0	5.5	4.5	5.0	8.5	6.5	7.5	12.5	11.0	11.5
23	.0	.0	.0	6.0	4.5	5.0	8.0	7.0	7.5	12.5	11.0	12.0
24	.0	.0	.0	6.5	5.0	5.5	8.0	6.0	7.0	12.5	10.5	11.5
25	.5	.0	.0	6.5	5.5	6.0	8.0	6.5	7.0	12.0	10.0	11.0
26	1.0	.5	.5	5.5	4.0	4.5	10.0	7.0	8.0	12.5	11.0	11.5
27	1.0	1.0	1.0	4.5	3.0	3.5	11.0	8.0	9.0	12.5	10.5	11.5
28	1.5	1.0	1.0	3.0	1.5	2.0	11.5	9.0	10.5	10.5	9.0	9.5
29	---	---	---	4.5	3.0	4.0	11.5	9.0	10.0	9.5	8.5	9.0
30	---	---	---	4.5	4.0	4.5	10.5	8.5	9.5	9.5	8.5	9.0
31	---	---	---	4.5	4.0	4.0	---	---	---	11.5	9.5	10.0
MONTH	1.5	.0	.0	6.5	.0	3.0	11.5	3.5	7.0	12.5	6.0	9.5

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	11.5	9.5	10.5	15.5	13.5	14.0	19.5	18.5	19.0	15.5	15.0	15.0
2	13.0	10.5	11.5	14.5	11.5	13.0	19.5	18.5	19.0	16.5	15.5	15.5
3	13.5	11.5	12.5	16.5	13.0	14.5	19.5	18.0	19.0	17.0	16.0	16.5
4	13.0	12.0	12.5	18.5	15.0	16.5	19.0	18.0	18.5	16.5	15.0	16.0
5	12.0	11.0	11.5	19.0	16.5	17.5	19.5	18.5	19.0	15.0	14.0	14.5
6	11.0	10.0	10.0	18.5	16.5	17.5	19.5	18.0	19.0	15.0	14.5	15.0
7	10.5	9.0	9.5	19.0	16.0	17.5	---	---	---	16.5	15.5	16.0
8	11.0	9.0	10.0	19.0	17.0	18.0	19.5	---	---	17.0	16.5	17.0
9	13.0	9.5	11.0	19.5	17.0	18.0	19.0	17.5	18.0	17.5	16.0	17.0
10	14.0	11.5	12.5	19.5	18.0	18.5	19.5	18.0	18.5	16.0	14.5	15.5
11	15.0	12.5	14.0	19.0	17.0	17.5	19.0	17.5	18.5	14.5	13.0	14.0
12	15.5	13.5	14.5	17.5	15.5	16.5	19.0	17.0	18.0	13.5	12.5	13.0
13	15.0	13.5	14.5	17.0	15.0	15.5	17.5	15.5	17.0	14.0	13.0	13.5
14	14.0	13.0	13.5	17.5	16.0	16.5	17.0	15.5	16.0	14.0	13.0	13.5
15	14.0	12.0	13.0	17.5	16.0	16.5	19.0	17.0	18.0	14.5	13.5	13.5
16	14.5	12.5	13.5	19.0	16.5	17.5	19.0	17.5	18.0	14.5	14.0	14.0
17	14.0	12.5	13.0	20.0	18.5	19.0	19.5	18.0	18.5	15.0	13.5	14.5
18	12.5	11.5	12.0	20.5	19.5	20.0	19.0	17.5	18.5	14.5	13.5	14.0
19	12.5	11.5	11.5	21.0	19.5	20.0	19.0	18.0	18.5	15.0	14.0	14.0
20	13.5	11.0	12.0	21.5	20.0	20.5	18.5	17.0	18.0	15.0	13.5	14.0
21	14.5	12.5	13.5	21.5	19.5	20.5	17.5	16.5	17.0	15.0	13.5	14.0
22	15.5	12.5	14.0	21.0	19.5	20.0	17.5	16.5	17.0	14.5	13.0	14.0
23	16.0	13.0	14.5	20.0	19.0	19.5	18.0	17.0	17.5	14.0	13.0	13.5
24	17.0	13.5	15.0	19.5	18.5	19.0	17.5	16.5	17.0	14.0	12.5	13.0
25	16.5	14.5	16.5	19.5	19.0	19.0	17.0	16.5	16.5	13.0	12.0	12.5
26	19.5	16.0	17.5	19.5	18.5	19.0	17.5	16.0	16.5	13.5	12.0	12.5
27	20.0	17.0	18.5	19.5	18.5	19.0	16.5	15.5	16.0	14.0	13.0	13.5
28	19.0	16.0	17.5	19.0	17.0	18.5	16.0	15.5	16.0	14.0	12.5	13.5
29	19.0	16.5	17.5	18.5	17.0	17.5	16.5	16.0	16.5	13.0	11.5	12.5
30	18.0	15.5	16.5	19.0	18.5	18.5	18.0	17.0	17.5	13.0	12.0	12.5
31	---	---	---	19.0	18.0	18.5	17.5	15.5	16.5	---	---	---
MONTH	20.0	9.0	13.5	21.5	11.5	18.0	19.5	15.5	17.5	17.5	11.5	14.5
YEAR	21.5	.0	7.5									

12342500 WEST FORK BITTERROOT RIVER NEAR CONNER, MT

LOCATION.--Lat 45°43'30", long 114°16'50", in SE¼NE¼NW¼ sec.26, T.1 S., R.22 W., Ravalli County, Hydrologic Unit 17010205, on right bank 0.6 mi (1.0 km) downstream from Painted Rocks Lake, 6.4 mi (10.3 km) upstream from Nez Perce Creek, 16.1 mi (25.9 km) southwest of Conner, and at mile 19.2 (30.9 km).

DRAINAGE AREA.--317 mi² (821 km²).

PERIOD OF RECORD.--April 1941 to current year.

REVISED RECORDS.--WSP 1246: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 4,581.4 ft (1,396.41 m) National Geodetic Vertical Datum of 1929 (Forest Service bench mark).

REMARKS.--Records excellent. Flow regulated by Painted Rocks Lake (see p. 765,769). Diversions for irrigation of about 200 acres (0.81 km²) above station. Several observations of water temperature were made during the year and are available in files of Helena district office.

AVERAGE DISCHARGE.--38 years, 292 ft³/s (8.269 m³/s), 211,600 acre-ft/yr (261 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,060 ft³/s (115 m³/s) May 9, 1947, gage height, 6.18 ft (1.884 m); minimum, 0.2 ft³/s (0.006 m³/s) Nov. 25, 1952; minimum daily, 0.6 ft³/s (0.017 m³/s) May 3-7, 1954.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,980 ft³/s (56.1 m³/s) May 25, gage height, 4.36 ft (1.329 m); minimum daily, 96 ft³/s (2.72 m³/s) Apr. 2-16.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	121	116	111	100	101	98	98	260	913	321	126	155
2	121	116	111	100	100	98	96	260	826	308	126	155
3	121	116	110	102	100	98	96	260	797	298	126	155
4	121	116	110	102	100	98	96	260	846	288	126	155
5	121	116	109	102	100	98	96	260	930	220	126	155
6	121	116	109	102	100	98	96	263	973	172	127	155
7	121	116	109	102	100	98	96	263	915	215	128	155
8	121	116	109	102	100	98	96	263	823	218	128	155
9	121	116	109	102	100	98	96	263	734	210	222	155
10	121	116	109	103	100	98	96	263	679	203	313	154
11	120	116	109	103	100	97	96	263	657	194	309	153
12	119	116	109	105	100	97	96	263	666	189	306	153
13	119	116	109	104	100	97	96	263	681	181	306	153
14	119	114	107	102	100	98	96	263	683	170	304	153
15	119	114	107	102	98	98	96	263	645	161	303	153
16	119	111	107	103	98	98	96	264	595	155	303	153
17	119	111	107	102	98	98	97	267	553	240	302	153
18	116	111	107	103	98	98	98	418	615	200	299	153
19	116	111	107	102	98	98	119	1130	615	136	299	153
20	116	111	107	102	98	98	204	1270	545	134	299	153
21	116	111	107	103	98	98	260	1330	518	126	299	150
22	116	111	107	104	98	98	260	1450	520	126	296	150
23	116	111	107	102	98	98	260	1650	468	126	295	150
24	116	111	107	102	98	98	260	1920	434	126	295	150
25	116	111	107	103	98	98	258	1930	411	126	295	233
26	116	111	105	102	98	98	257	1850	397	126	294	325
27	116	111	105	102	98	98	257	1690	385	126	220	322
28	116	111	106	102	98	98	257	1770	365	126	158	321
29	116	111	104	102	---	98	257	1500	345	126	158	318
30	116	111	101	102	---	98	258	1240	328	126	156	275
31	116	---	100	102	---	98	---	1050	---	126	155	---
TOTAL	3668	3401	3328	3171	2773	3035	4640	24859	18862	5599	7199	5473
MEAN	118	113	107	102	99.0	97.9	155	802	629	181	232	182
MAX	121	116	111	105	101	98	260	1930	973	321	313	325
MIN	116	111	100	100	98	97	96	260	328	126	126	150
AC-FT	7280	6750	6600	6290	5500	6020	9200	49310	37410	11110	14280	10860

CAL YR 1978 TOTAL 125955 MEAN 345 MAX 2330 MIN 100 AC-FT 249800
WTR YR 1979 TOTAL 86008 MEAN 236 MAX 1930 MIN 96 AC-FT 170600

12344000 BITTERROOT RIVER NEAR DARBY, MT

LOCATION.--Lat 45°58'20", long 114°08'26", in SW¼SE¼NE¼ sec.36, T.3 N., R.21 W., Ravalli County, Hydrologic Unit 17010205, on left bank 45 ft (14 m) downstream from bridge on U.S. Highway 93, 0.3 mi (0.5 km) downstream from Chaffin Creek, 4.1 mi (6.6 km) southeast of Darby, and at mile 77.2 (124.2 km).

DRAINAGE AREA.--1,049 mi² (2,717 km²).

PERIOD OF RECORD.--April 1937 to current year. Monthly discharge only for April 1937, published in WSP 1316.

REVISED RECORDS.--WSP 1246: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 3,943.14 ft (1,201.869 m) National Geodetic Vertical Datum of 1929. Prior to Aug. 2, 1939, nonrecording gage at highway bridge 45 ft (14 m) upstream at same datum .

REMARKS.--Records good except those for Jan. 1 to Feb. 5, which are poor. Some regulation by Painted Rocks Lake (see p. 765,769). Diversions for irrigation of about 5,000 acres (20 km²) above station. Ditch bypassing station irrigated about 500 acres (2.0 km²) below. Several observations of water temperature were made during the year and are available in files of the Helena district office.

AVERAGE DISCHARGE.--42 years, 933 ft³/s (26.42 m³/s), 676,000 acre-ft/yr (834 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,500 ft³/s (326 m³/s) May 9, 1947, gage height, 8.18 ft (2.493 m); maximum gage height, 8.42 ft (2.566 m) June 17, 1974 (backwater from log jam); minimum discharge observed, about 71 ft³/s (2.01 m³/s) Feb. 9, 1939; minimum gage height, 0.10 ft (0.030 m) Nov. 28, 1976, and Mar. 15, 1977, result of freezeup and regulation.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,990 ft³/s (170 m³/s) May 27, gage height, 5.89 ft (1.796 m); minimum daily discharge, 178 ft³/s (5.04 m³/s) Dec. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	362	273	277	194	208	234	349	1860	2610	1330	330	386
2	362	293	268	200	215	227	333	1880	2560	1150	321	373
3	353	297	268	210	235	208	329	1840	2810	1070	313	368
4	346	294	282	205	242	230	325	1970	3180	1060	304	359
5	343	289	266	198	252	250	329	2210	3340	1010	296	354
6	339	265	254	192	234	264	370	2140	3270	869	293	347
7	336	282	210	188	228	317	446	1860	2790	876	282	340
8	332	293	218	188	215	345	462	1670	2460	860	276	330
9	328	319	263	195	226	317	512	1480	2220	805	291	315
10	323	237	282	205	230	309	507	1340	2220	766	431	300
11	319	192	284	220	243	329	464	1280	2420	740	430	293
12	313	218	282	230	257	353	438	1290	2630	694	429	292
13	310	277	260	240	294	357	427	1330	2780	650	444	291
14	309	269	267	230	290	362	416	1590	2770	619	465	288
15	309	256	281	240	264	385	428	1860	2400	582	479	284
16	305	267	258	236	247	430	453	2500	2230	559	467	279
17	304	291	266	232	243	430	580	2610	2150	570	468	262
18	301	291	276	228	247	400	757	2620	2480	625	463	260
19	301	263	272	225	243	375	676	3220	2430	490	490	263
20	300	252	267	235	230	366	691	3490	2110	462	489	264
21	302	255	271	248	230	362	724	3700	2170	441	496	264
22	300	255	271	236	234	366	734	4160	2240	436	519	254
23	298	278	270	252	226	370	803	4700	2010	441	514	247
24	298	281	274	258	229	390	838	5710	1890	405	503	254
25	293	273	265	238	235	430	854	5570	1850	385	492	268
26	284	275	239	260	238	420	864	5380	1830	370	483	385
27	284	277	242	251	238	405	981	5600	1810	362	457	390
28	287	275	225	232	239	405	1240	4920	1670	366	362	390
29	288	267	185	218	---	390	1450	4030	1510	370	347	390
30	285	273	178	214	---	375	1670	3320	1430	357	337	390
31	262	---	182	208	---	362	---	2850	---	341	373	---
TOTAL	9676	8127	7903	6906	6712	10763	19450	89980	70270	20061	12644	9480
MEAN	312	271	255	223	240	347	648	2903	2342	647	408	316
MAX	362	319	284	260	294	430	1670	5710	3340	1330	519	390
MIN	262	192	178	188	206	208	325	1280	1430	341	276	247
CFSM	.30	.26	.24	.21	.23	.33	.62	2.77	2.23	.62	.39	.30
IN.	.34	.29	.28	.24	.24	.38	.69	3.19	2.49	.71	.45	.34
AC-FT	19190	16120	15680	13700	13310	21350	38580	178500	139400	39790	25080	18800

CAL YR 1978 TOTAL 424689 MEAN 1164 MAX 6730 MIN 178 CFSM 1.11 IN 15.06 AC-FT 842400
WTR YR 1979 TOTAL 271972 MEAN 745 MAX 5710 MIN 178 CFSM .71 IN 9.64 AC-FT 539500

12346500 SKALKAHO CREEK NEAR HAMILTON, MT

LOCATION.--Lat 46°09'43", long 113°57'08", in SW¼NE¼ sec.27, T.5 N., R.19 W., Ravalli County, Hydrologic Unit 17010205, Bitterroot National Forest, on right bank 2 mi (3 km) downstream from Daly Creek, 11.4 mi (18.3 km) southeast of Hamilton, and at mile 12.0 (19.3 km).

DRAINAGE AREA.--87.8 mi^2 (227.4 km^2).

PERIOD OF RECORD.--December 1948 to September 1953, August 1957 to September 1979 (discontinued). April 1920 to September 1924 at site 3 mi (5 km) downstream; records not equivalent owing to inflow.

GAGE.--Water-stage recorder. Datum of gage is 4,393.16 ft (1,339.035 m) National Geodetic Vertical Datum of 1929 (Bureau of Public Roads bench mark).

REMARKS.--Records good except those for winter period, which are poor. Several observations of water temperature were made during the year and are available in files of Helena district office. During irrigation season flow is supplemented by releases from Kent and Dam Creek Lakes, combined capacity, 200 acre-ft (247,000 m^3).

AVERAGE DISCHARGE.--26 years, (1949-53, 1957-79), 93.5 ft^3/s (2.648 m^3/s), 14.46 in/yr (367 mm/yr), 67,740 acre-ft/yr (83.5 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,210 ft^3/s (34.3 m^3/s) June 1, 1972, gage height, 4.84 ft (1.475 m); maximum gage height recorded, 5.18 ft (1.579 m) Feb. 29, 1960 (backwater from ice); minimum discharge recorded, 10 ft^3/s (0.28 m^3/s) Apr. 2, 1953, gage height, 1.26 ft (0.384 m), backwater from ice, result of freezeup.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 524 ft^3/s (14.8 m^3/s) May 27, gage height, 3.85 ft (1.173 m), only peak above base of 400 ft^3/s (11.3 m^3/s); minimum daily, 16 ft^3/s (0.45 m^3/s) Dec. 31.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	52	39	28	17	23	22	22	95	280	165	61	58
2	51	39	27	18	24	22	22	93	284	155	60	49
3	50	39	27	19	25	21	22	94	316	147	59	46
4	48	40	28	20	26	23	22	107	362	146	56	44
5	49	38	27	19	27	24	23	128	377	136	55	44
6	48	37	26	18	26	25	25	131	363	134	54	43
7	47	37	24	17	25	26	28	115	318	132	53	41
8	47	41	22	18	24	25	26	107	284	123	53	40
9	46	40	24	20	25	24	28	99	270	119	51	39
10	46	38	26	22	26	24	28	94	283	114	50	38
11	45	35	27	24	27	24	28	92	313	109	49	38
12	45	32	26	26	28	24	28	94	345	107	49	38
13	44	30	25	28	27	24	29	103	367	104	51	37
14	44	32	27	27	25	24	29	122	354	101	51	37
15	44	34	30	26	23	25	31	152	315	98	59	35
16	44	40	29	25	21	25	33	195	295	95	51	35
17	43	45	28	24	23	25	42	199	290	92	51	34
18	43	45	29	24	25	25	43	208	318	89	50	34
19	42	40	30	25	24	25	38	225	286	86	65	34
20	42	35	29	26	23	24	37	246	258	85	56	33
21	42	30	30	27	22	24	36	282	262	82	56	33
22	41	32	29	26	22	24	38	332	246	82	57	32
23	40	34	28	25	22	24	43	378	230	79	50	32
24	41	36	26	24	22	24	42	402	219	76	49	31
25	40	37	25	24	22	25	42	406	213	73	48	31
26	40	35	22	23	22	24	43	425	208	71	47	32
27	39	32	20	26	22	24	49	466	202	70	49	32
28	40	34	19	25	22	23	61	409	188	70	50	31
29	40	33	18	24	---	23	71	365	178	69	46	30
30	39	33	17	24	---	23	86	315	171	65	46	29
31	36	---	16	23	---	22	---	289	---	64	86	---
TOTAL	1358	1092	789	714	673	741	1095	6768	8395	3138	1668	1110
MEAN	43.8	36.4	25.5	23.0	24.0	23.9	36.5	218	280	101	53.8	37.0
MAX	52	45	30	28	28	26	86	466	377	165	86	58
MIN	36	30	16	17	21	21	22	92	171	64	46	29
CFSM	.50	.42	.29	.26	.27	.27	.42	2.48	3.19	1.15	.61	.42
IN.	.58	.46	.33	.30	.29	.31	.46	2.87	3.56	1.33	.71	.47
AC-FT	2690	2170	1560	1420	1330	1470	2170	13420	16650	6220	3310	2200

CAL YR 1978 TOTAL 37683 MEAN 103 MAX 583 MIN 16 CFSM 1.17 IN 15.97 AC-FT 74740
WTR YR 1979 TOTAL 27541 MEAN 75.5 MAX 466 MIN 16 CFSM .86 IN 11.67 AC-FT 54630

12353000 CLARK FORK BELOW MISSOULA, MT

LOCATION.--Lat 46°52'09", long 114°07'33", in NW¼NE¼SE¼ sec.21, T.13 N., R.20 W., Missoula County, Hydrologic Unit 17010204, on right bank 1.0 mi (1.6 km) downstream from Bitterroot River, 4.5 mi (7.2 km) west of Missoula, and at mile 349.5 (562.3 km).

DRAINAGE AREA.--9,003 mi^2 (23,318 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1929 to current year.

REVISED RECORDS.--WSP 1042: 1931. WSP 1246: Drainage area. WSP 1316: 1932(M), 1935(M), 1946(M).

GAGE.--Water-stage recorder. Datum of gage is 3,083.88 ft (939.967 m) National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers).

REMARKS.--Water-discharge records excellent. Some diurnal fluctuation at low flow caused by powerplant at Bonner 14.9 mi (24.0 km) upstream. Diversions for irrigation of about 235,000 acres (951 km^2) above station.

AVERAGE DISCHARGE.--50 years, 5,496 ft^3/s (155.6 m^3/s), 3,982,000 acre-ft/yr (4.91 km^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 52,800 ft^3/s (1,500 m^3/s) May 23, 1948, gage height, 12.08 ft (3.682 m); minimum, 388 ft^3/s (11.0 m^3/s) Jan. 18, 1933; minimum gage height, 0.30 ft (0.091 m) about Jan. 16, 1954, Mar. 24, 1964.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 31,700 ft^3/s (898 m^3/s) May 27, gage height, 9.14 ft (2.786 m); minimum, 867 ft^3/s (24.6 m^3/s) Dec. 31, gage height, 0.47 ft (0.143 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3260	2470	2530	944	1630	2370	3370	10300	16000	7480	1950	2530
2	3220	2440	2380	1010	1680	2300	3240	11500	14700	7140	1860	2580
3	3220	2500	2290	1140	1720	2200	3150	11500	15000	6470	1840	2460
4	3210	2530	2430	1320	1770	2130	3060	11700	16900	5980	1790	2370
5	3150	2570	2550	1420	1850	2190	3120	13100	18600	5750	1760	2310
6	3100	2530	2370	1450	1890	2440	3330	14900	19300	5570	1700	2270
7	3040	2500	1940	1460	1960	2920	3760	14600	17900	5290	1650	2240
8	2990	2530	1550	1450	1960	3800	4190	13200	15400	5030	1630	2220
9	2940	2660	1660	1500	1950	4060	4320	11700	13700	4810	1610	2160
10	2870	2610	2020	1580	2030	3720	4560	10500	12700	4540	1560	2060
11	2860	2000	2370	1740	2230	3560	4560	9430	13000	4250	1520	2030
12	2760	1880	2430	1860	2600	3560	4410	8980	14600	4170	1500	2030
13	2740	2170	2160	1940	3190	3720	4230	8800	16100	3700	1520	2020
14	2740	2220	1770	1960	3880	3700	4190	9280	16700	3500	1590	1990
15	2740	2110	2070	1990	3220	3640	4100	10800	15200	3350	1720	1980
16	2730	2150	2130	1980	2730	3740	4100	14100	13600	3220	1790	1930
17	2690	2430	1930	1930	2520	4080	4360	17200	12900	3100	1820	1860
18	2680	2570	1930	1890	2490	4280	5090	17700	14000	2870	1800	1850
19	2680	2190	2120	1880	2490	4100	5570	17700	14200	2740	1840	1820
20	2610	1630	2190	1910	2460	4000	5490	18400	13200	2580	1880	1780
21	2600	1580	2220	1990	2330	3880	5340	18900	12300	2500	1990	1760
22	2570	1830	2300	2020	2310	3760	5240	20400	12300	2440	2090	1740
23	2550	2200	2300	1980	2170	3720	5420	22900	11800	2380	2120	1710
24	2570	2530	2310	1980	2170	3680	5640	26400	11000	2330	2130	1680
25	2550	2520	2270	1940	2160	3820	5620	29900	10500	2230	2150	1660
26	2530	2550	2090	1860	2290	3960	5590	29600	10300	2150	2130	1670
27	2500	2500	2000	1860	2370	3820	5750	30300	9700	2070	2160	1680
28	2520	2490	1850	1840	2410	3700	6270	30400	8980	2080	2230	1740
29	2520	2490	1350	1780	---	3560	7530	26300	8530	2130	2200	1800
30	2490	2470	1040	1710	---	3600	8860	21600	7930	2110	2110	1800
31	2500	---	935	1580	---	3460	---	18300	---	2040	2240	---
TOTAL	86130	69850	63485	52894	64460	107470	143460	530390	407040	116000	57880	59730
MEAN	2778	2328	2048	1706	2302	3467	4782	17110	13570	3742	1867	1991
MAX	3260	2660	2550	2020	3880	4280	8860	30400	19300	7480	2240	2580
MIN	2490	1580	935	944	1630	2130	3060	8800	7930	2040	1500	1660
AC-FT	170800	138500	125900	104900	127900	213200	284600	1052000	807400	230100	114800	118500

CAL YR 1978 TOTAL 2313605 MEAN 6339 MAX 30400 MIN 935 AC-FT 4589000
WTR YR 1979 TOTAL 1758789 MEAN 4819 MAX 30400 MIN 935 AC-FT 3489000

12353000 CLARK FORK BELOW MISSOULA, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1977 to current year.

PERIOD OF DAILY RECORDS.--
WATER TEMPERATURES: June 1977 to current year.
SPECIFIC CONDUCTANCE: October 1978 to September 1979.

INSTRUMENTATION.--Temperature recorder since June 21, 1977.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum, 23.0°C July 19-21, 1979; minimum, 0.0°C on several days during winter periods.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum, 23.0°C July 19-21; minimum, 0.0°C on several days during November to February.
SPECIFIC CONDUCTANCE: Maximum daily, 347 micromhos Jan. 1; minimum daily, 146 micromhos June 12.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)
OCT 20...	1100	2650	2	305	7.9	1.0	7.5	.70	9.6	92
NOV 17...	1230	2470	68	318	7.6	2.0	1.0	.40	12.6	99
DEC 21...	1200	2240	71	326	7.9	-1.0	.5	.40	12.2	95
JAN 29...	1500	1820	1	356	7.7	-18.0	.5	.70	12.8	99
FEB 21...	1600	2370	83	327	7.7	.0	1.5	3.2	12.2	99
MAR 20...	1500	4000	0	297	7.3	9.5	6.0	7.0	12.0	108
APR 25...	1530	5570	2	229	7.9	9.0	9.0	4.1	10.2	108
MAY 22...	1500	20800	0	104	7.6	24.0	12.5	12	10.2	106
JUN 12...	1000	14200	0	139	7.3	17.0	13.0	5.4	9.4	100
JUL 17...	1500	3080	0	250	8.0	33.5	21.0	.90	9.2	114
AUG 09...	1100	1610	0	286	8.1	31.0	16.5	1.3	9.1	103
SEP 11...	1500	2040	1	302	8.4	21.0	15.5	.70	11.2	125

DATE	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)
OCT 20...	K11	K7	130	2	38	8.9	21	.8	2.2	130
NOV 17...	K11	100	150	39	43	10	7.7	.3	2.1	110
DEC 21...	K3	24	150	39	44	9.4	7.6	.3	2.0	110
JAN 29...	--	K1	150	36	42	9.9	7.7	.3	2.1	110
FEB 21...	K2	45	150	35	42	9.8	8.3	.3	2.0	110
MAR 20...	K10	K18	140	44	42	9.1	8.1	.3	2.4	98
APR 25...	K6	K14	94	20	26	7.1	5.7	.3	1.6	74
MAY 22...	180	150	49	13	14	3.5	2.7	.2	1.0	36
JUN 12...	150	81	61	12	17	4.6	3.1	.2	.9	49
JUL 17...	K10	K12	110	14	29	8.6	6.0	.3	1.4	94
AUG 09...	K8	53	130	14	37	10	6.6	.2	2.1	120
SEP 11...	K4	K8	140	25	39	11	8.8	.3	2.4	120

12353000 CLARK FORK BELOW MISSOULA, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)
OCT 20...	36	2.9	.3	12	174	199	.24	1250	.05
NOV 17...	45	2.9	.2	14	198	191	.27	1320	.12
DEC 21...	43	2.8	.2	14	197	189	.27	1190	.21
JAN 29...	45	3.0	.2	16	196	192	.27	973	.13
FEB 21...	51	3.3	.2	15	186	196	.25	1190	.26
MAR 20...	46	3.3	.3	14	179	166	.24	1930	.16
APR 25...	29	1.9	.2	13	145	129	.20	2180	.05
MAY 22...	11	.9	.1	6.9	73	64	.10	4100	.04
JUN 12...	11	.9	.2	6.2	63	75	.11	3180	.04
JUL 17...	22	1.9	.2	11	134	137	.18	1110	.04
AUG 09...	27	2.6	.2	13	167	171	.23	726	.11
SEP 11...	34	2.7	.2	6.8	168	180	.26	1040	.10

DATE	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, KJEL-DAHL, TOTAL (MG/L AS N) (00625)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C) (00689)
OCT 20...	.01	.33	.34	.19	.03	.02	3.4	--	--
NOV 17...	.01	.06	.07	.12	.02	.02	--	.9	.4
DEC 21...	.01	.14	.15	.14	.02	.03	1.4	--	--
JAN 29...	.01	.20	.21	.13	.05	.05	--	2.0	.5
FEB 21...	.07	.14	.21	.08	.06	.05	1.7	--	--
MAR 20...	.04	.25	.29	.14	.04	.04	4.3	--	--
APR 25...	.01	.24	.25	.20	.02	.01	3.6	--	--
MAY 22...	.02	.23	.25	.16	.03	.01	--	4.1	1.1
JUN 12...	.01	.30	.31	.27	.02	.03	3.0	--	--
JUL 17...	.03	.27	.30	.16	.00	.02	4.2	--	--
AUG 09...	.00	1.2	1.2	.61	.03	.03	--	2.3	.3
SEP 11...	.01	.52	.53	.55	.02	.02	2.5	--	--

12353000 CLARK FORK BELOW MISSOULA, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)
NOV 17...	1230	3	3	0	0	1	1	0	0
JAN 29...	1500	3	3	100	100	--	--	10	0
MAY 22...	1500	1	1	100	100	2	1	20	0
AUG 09...	1100	3	3	100	200	1	16	10	0

DATE	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO) (01037)	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)
NOV 17...	0	2	8	3	110	10	5	2	40
JAN 29...	2	<3	4	2	100	10	--	--	20
MAY 22...	0	0	16	2	1400	70	24	3	80
AUG 09...	0	<3	5	2	120	<10	12	6	20

DATE	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG) (01077)	SILVER, DIS-SOLVED (UG/L AS AG) (01075)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
NOV 17...	20	.0	.0	0	0	0	0	10	10
JAN 29...	8	.0	.0	0	0	1	0	20	10
MAY 22...	10	.0	.0	1	1	0	0	30	10
AUG 09...	8	.0	.0	0	0	0	0	20	<3

12353000 CLARK FORK BELOW MISSOULA, MT--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	302	304	307	347	---	297	318	181	158	207	276	318
2	303	308	307	332	322	278	294	184	167	210	277	323
3	287	306	307	333	323	274	295	180	157	212	277	328
4	286	306	306	333	318	278	293	174	148	212	278	322
5	287	302	307	333	326	274	301	176	152	212	276	321
6	287	304	318	335	319	278	271	172	150	209	278	328
7	289	302	320	292	318	286	269	184	150	210	277	329
8	304	300	318	319	317	279	271	205	147	190	278	321
9	290	299	316	319	319	290	272	206	148	195	278	328
10	287	299	318	318	317	296	267	206	147	150	277	318
11	293	288	302	318	284	290	271	206	150	176	277	319
12	293	294	306	318	288	291	271	186	146	221	276	320
13	292	314	308	322	293	290	272	186	151	220	277	319
14	292	315	306	324	312	297	271	195	150	221	280	320
15	310	318	323	318	313	298	271	186	204	266	280	321
16	295	317	323	318	312	290	247	158	203	261	277	320
17	293	292	323	325	326	292	248	156	202	250	309	319
18	295	290	324	318	326	298	248	155	202	236	298	315
19	295	292	322	319	329	297	248	157	207	242	297	316
20	292	292	312	327	332	296	247	172	205	241	297	317
21	297	293	314	337	328	303	247	175	201	247	298	317
22	303	303	320	317	328	288	245	171	203	248	299	318
23	312	304	312	325	327	297	245	169	207	263	298	317
24	298	303	313	318	325	296	247	169	207	262	299	318
25	300	303	313	326	272	298	170	168	204	261	300	318
26	293	303	311	328	273	294	171	169	206	259	300	319
27	297	308	---	327	272	294	171	169	200	261	301	318
28	299	308	342	328	274	294	172	171	200	262	300	317
29	301	307	338	327	---	295	170	171	200	267	301	321
30	302	302	338	330	---	295	170	173	206	270	300	320
31	301	---	340	333	---	295	---	168	---	273	299	---
MEAN	296	303	317	325	300	290	248	177	179	233	288	319

WTR YR 1979 MEAN 278 MAX 347 MIN 146

PEND OREILLE RIVER BASIN

12353000 CLARK FORK BELOW MISSOULA, MT--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	12.5	10.5	11.0	4.5	3.0	3.5	.5	.5	.5	.5	.5	.5
2	11.5	9.5	10.5	4.5	2.5	3.5	1.0	.5	.5	1.0	.5	.5
3	11.0	9.0	9.5	5.0	3.5	4.5	1.0	.5	.5	.5	.5	.5
4	11.0	8.5	9.5	6.0	5.0	5.5	1.0	.5	.5	.5	.5	.5
5	11.0	8.5	9.5	5.5	4.0	5.0	.5	.5	.5	.5	.5	.5
6	11.0	8.5	9.5	5.0	3.5	4.0	.5	.5	.5	.5	.5	.5
7	11.0	8.5	9.5	5.0	3.5	4.0	.5	.5	.5	.5	.5	.5
8	11.5	8.5	9.5	5.5	4.5	5.0	.5	.5	.5	1.0	.5	.5
9	11.5	9.0	10.0	5.5	3.5	5.0	.5	.5	.5	.5	.5	.5
10	11.0	9.5	10.0	3.5	.5	2.0	.5	.5	.5	.5	.5	.5
11	11.0	9.5	10.0	.5	.0	.5	1.0	.5	.5	.5	.5	.5
12	10.0	8.5	9.5	1.0	.5	.5	1.0	.5	.5	.5	.5	.5
13	9.5	7.5	8.5	1.0	.5	.5	.5	.0	.5	.5	.5	.5
14	9.0	6.5	7.5	1.0	.5	.5	1.0	.5	.5	.5	.5	.5
15	9.0	6.5	7.5	1.0	.5	.5	1.0	.5	.5	.5	.5	.5
16	9.0	7.0	8.0	1.0	.5	.5	.5	.0	.5	.5	.5	.5
17	10.0	7.5	8.5	1.0	.5	1.0	.5	.5	.5	.5	.5	.5
18	10.0	7.5	8.5	1.0	.5	.5	.5	.5	.5	.5	.0	.5
19	9.5	7.5	8.5	.5	.5	.5	1.0	.5	.5	.5	.5	.5
20	9.0	7.0	8.0	.5	.5	.5	1.0	.5	.5	1.0	.5	.5
21	9.5	7.5	8.5	1.0	.5	.5	1.0	.5	.5	1.0	.0	.5
22	8.5	6.5	7.5	.5	.5	.5	1.0	.5	.5	1.0	.5	.5
23	8.0	6.0	7.0	.5	.5	.5	.5	.5	.5	.5	.5	.5
24	8.0	6.5	7.0	.5	.5	.5	1.0	.5	.5	1.0	.5	.5
25	7.5	6.0	6.5	1.0	.5	.5	.5	.5	.5	.5	.5	.5
26	7.0	5.0	6.0	1.0	.5	.5	.5	.5	.5	.5	.5	.5
27	6.0	5.0	5.5	1.0	.5	.5	1.0	.0	.5	.5	.5	.5
28	7.0	5.0	6.0	1.0	.5	.5	.5	.5	.5	1.0	.0	.5
29	7.0	6.0	6.5	1.0	.5	.5	.5	.5	.5	.5	.0	.5
30	7.0	5.0	6.0	1.0	.5	.5	.5	.5	.5	.5	.5	.5
31	5.5	4.0	5.0	---	---	---	.5	.5	.5	.5	.5	.5
MONTH	12.5	4.0	8.0	6.0	.0	2.0	1.0	.0	.5	1.0	.0	.5

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	.5	.5	.5	1.5	.5	1.0	5.5	4.0	4.5	10.0	9.0	9.5
2	.5	.5	.5	1.5	.5	1.0	5.5	3.5	4.5	9.5	8.0	9.0
3	.5	.5	.5	1.5	.5	.5	5.5	3.5	4.5	11.0	8.5	9.5
4	1.0	.5	.5	2.0	.5	.5	6.0	4.0	5.0	11.0	9.5	10.0
5	1.0	.5	.5	2.0	.5	1.0	7.5	4.5	6.0	9.5	8.5	9.0
6	1.0	.5	.5	1.5	.5	1.0	8.5	6.0	7.5	8.5	8.0	8.5
7	1.0	.0	.5	2.5	1.0	2.0	9.0	6.5	7.5	9.5	7.5	8.5
8	1.0	.5	.5	2.5	1.5	2.0	8.0	6.5	7.0	8.5	7.5	8.5
9	1.0	.5	.5	3.0	1.5	2.5	7.0	6.0	6.5	8.0	7.0	7.5
10	1.5	.5	.5	3.0	1.0	2.0	6.0	4.5	5.5	8.0	6.5	7.5
11	1.0	.5	.5	3.5	1.0	2.0	7.0	4.5	6.0	10.0	7.5	9.0
12	1.0	.5	.5	4.0	1.5	2.5	7.5	6.5	7.0	10.0	8.5	9.5
13	1.0	.5	.5	4.5	2.0	3.0	8.0	6.0	7.0	11.0	8.5	10.0
14	.5	.0	.5	4.5	2.5	3.0	7.5	6.0	6.5	11.0	9.5	10.5
15	.5	.0	.5	5.0	2.5	3.5	8.5	6.5	7.5	12.5	10.0	11.5
16	1.0	.5	.5	5.5	3.5	4.5	9.5	7.5	8.5	12.5	10.0	11.0
17	1.5	.5	.5	5.5	4.0	4.5	10.5	8.5	9.5	10.0	8.5	9.5
18	1.5	.5	1.0	5.5	4.0	4.5	9.0	7.5	8.0	10.0	9.0	9.5
19	1.5	.5	1.0	6.5	4.5	5.0	7.5	6.5	7.0	11.0	9.0	10.0
20	1.5	.5	.5	6.0	4.5	5.0	8.5	6.5	7.5	11.0	9.5	10.5
21	1.0	.5	1.0	7.0	4.5	5.0	9.0	6.5	7.5	12.0	10.0	11.0
22	1.0	.5	.5	7.0	5.0	6.0	8.0	7.5	8.0	12.5	10.5	11.5
23	1.0	.0	.5	7.5	5.0	6.0	8.0	7.0	7.5	12.5	11.0	11.5
24	1.0	.5	.5	8.0	5.0	6.0	8.5	6.5	7.5	12.0	10.0	11.0
25	1.0	.5	.5	7.0	5.5	6.0	8.5	7.5	8.0	11.5	9.5	10.5
26	1.5	.5	1.0	5.5	4.5	5.0	10.5	7.5	9.0	12.0	10.5	11.5
27	1.5	.5	1.0	4.5	3.0	3.5	11.0	8.5	10.0	12.0	10.5	11.0
28	1.0	.5	1.0	4.0	2.0	3.0	12.0	10.0	11.0	10.0	9.0	9.5
29	---	---	---	6.0	2.5	4.5	11.5	10.0	10.5	9.5	8.5	9.0
30	---	---	---	5.5	4.0	5.0	10.5	9.5	10.0	9.5	8.0	9.0
31	---	---	---	5.5	4.0	4.5	---	---	---	11.5	9.0	10.0
MONTH	1.5	.0	.5	8.0	.5	3.5	12.0	3.5	7.5	12.5	6.5	10.0

12353000 CLARK FORK BELOW MISSOULA, MT--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	11.0	10.0	10.5	---	---	---	21.5	15.5	18.5	17.5	14.0	15.5
2	13.0	10.5	11.5	---	---	---	21.5	15.5	18.5	18.5	14.5	16.0
3	13.5	11.0	12.5	---	---	---	21.5	16.0	18.5	19.0	15.0	16.5
4	13.0	11.5	12.5	---	---	---	21.0	15.0	18.0	17.0	14.5	15.5
5	12.0	11.0	11.5	---	---	---	21.5	16.0	18.5	17.5	13.0	15.0
6	11.0	9.5	10.0	---	---	---	21.0	15.5	18.5	17.5	13.0	15.5
7	10.5	9.0	9.5	---	---	---	21.5	15.0	18.0	18.5	13.5	16.0
8	11.0	9.0	10.0	---	---	---	20.0	15.0	18.0	19.5	15.0	17.0
9	12.5	9.5	11.0	---	---	---	21.0	15.0	18.0	17.5	15.5	16.5
10	14.0	11.5	12.5	---	---	---	21.5	15.5	18.5	16.5	14.0	15.5
11	15.0	12.5	13.5	---	---	---	20.0	16.0	18.0	16.0	12.5	14.5
12	14.5	13.0	13.5	---	---	---	20.0	16.0	18.0	16.0	11.5	13.5
13	15.0	13.0	14.0	---	---	---	18.0	15.5	16.0	16.0	11.5	13.5
14	14.0	12.5	13.5	---	---	---	19.5	14.5	16.5	16.0	11.5	14.0
15	13.5	11.5	12.5	---	---	---	19.0	15.5	17.5	16.5	11.5	14.0
16	14.5	12.0	13.0	---	---	---	20.5	15.5	18.0	16.5	12.5	14.5
17	13.5	12.5	13.0	22.0	---	---	20.0	16.0	18.0	16.5	12.5	14.5
18	12.0	11.0	11.5	22.5	17.5	19.5	19.5	16.5	18.0	16.5	12.0	14.5
19	12.0	11.0	11.5	23.0	17.5	20.0	21.0	16.5	18.5	16.5	12.0	14.5
20	13.0	10.5	12.0	23.0	18.0	20.0	19.5	16.5	18.0	16.5	12.5	14.5
21	---	---	---	23.0	18.0	20.0	19.5	15.5	17.0	16.5	12.5	14.5
22	---	---	---	21.5	18.0	19.5	20.0	15.0	17.5	16.0	12.0	14.0
23	---	---	---	22.5	17.0	19.5	19.0	15.5	17.5	15.5	11.5	14.0
24	---	---	---	22.0	16.5	19.0	19.5	15.5	17.5	15.5	11.0	13.5
25	---	---	---	21.5	16.5	18.5	19.5	15.5	17.0	14.0	11.0	13.0
26	---	---	---	22.0	16.0	19.0	18.0	15.0	16.5	14.5	12.0	13.0
27	---	---	---	21.0	16.5	18.5	17.5	15.0	16.0	15.5	11.5	13.5
28	---	---	---	19.0	16.0	17.5	19.0	14.0	16.5	15.0	12.0	13.0
29	---	---	---	20.5	15.0	17.5	19.5	14.5	17.0	15.0	11.0	13.0
30	---	---	---	21.5	15.5	18.5	19.5	15.5	17.5	14.0	11.0	12.5
31	---	---	---	21.5	16.0	18.5	17.0	15.5	16.5	---	---	---
MONTH	15.0	9.0	12.0	23.0	15.0	19.0	21.5	14.0	17.5	19.5	11.0	14.5
YEAR	23.0	.0	7.5									

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPER-ATURE (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT						
20...	1100	7.5	2650	4	29	73
NOV						
17...	1230	1.0	2470	4	27	79
DEC						
21...	1200	.5	2240	3	18	80
JAN						
29...	1500	.5	1820	6	29	57
FEB						
21...	1600	1.5	2370	12	77	83
MAR						
20...	1500	6.0	4000	21	227	83
APR						
25...	1530	9.0	5570	21	316	73
MAY						
22...	1500	12.5	20800	111	6230	49
JUN						
12...	1000	13.0	14200	44	1690	48
JUL						
17...	1500	21.0	3080	5	42	76
AUG						
09...	1100	16.5	1610	6	26	80
SEP						
11...	1500	15.5	2040	4	22	82

12353000 CLARK FORK BELOW MISSOULA, MT--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

PHYTOPLANKTON

DATE TIME	NOV 17,78 1230	MAR 20,79 1500	MAY 22,79 1500	JUN 12,79 1000
TOTAL CELLS/ML	360	690	1500	800
DIVERSITY: DIVISION	0.8	1.0	1.0	1.2
.CLASS	0.8	1.0	1.0	1.2
..ORDER	0.8	1.0	1.1	1.2
...FAMILY	1.7	2.1	1.5	1.4
....GENUS	1.7	2.1	1.5	1.4

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)								
.CHLOROPHYCEAE								
..CHLOROCOCCALES								
...COELASTRACEAE								
....COELASTRUM	--	-	--	-	--	-	--	-
...HYDRODICTYACEAE								
....PEDIASTRUM	200#	56	330#	48	--	-	--	-
...OOCYSTACEAE								
....ANKISTRODESMUS	72#	20	--	-	--	-	--	-
....CHLORELLA	--	-	--	-	--	-	--	-
....SELENASTRUM	--	-	--	-	--	-	--	-
....TREUBARIA	--	-	--	-	13	1	--	-
...SCENEDESMACEAE								
....SCENEDESMUS	--	-	--	-	52	3	52	6
..VOLVOCALES								
...CHLAMYDOMONADACEAE								
....CHLAMYDOMONAS	--	-	43	6	--	-	--	-
..ZYGNEMATALES								
...DESMIDIACEAE								
....COSMARIUM	--	-	14	2	--	-	--	-
CHRYSOPHYTA								
.BACILLARIOPHYCEAE								
..CENTRALES								
...COSCINODISCACEAE								
....CYCLOTELLA	--	-	--	-	--	-	--	-
....STEPHANODISCUS	--	-	--	-	26	2	--	-
..PENNALES								
...ACHNANTHACEAE								
....ACHNANTHES	14	4	--	-	--	-	--	-
....COCCONEIS	--	-	--	-	--	-	--	-
...CYMBELLACEAE								
....CYMBELLA	58#	16	160#	23	26	2	--	-
....EPITHEMIA	--	-	--	-	13	1	--	-
...DIATOMACEAE								
....DIATOMA	--	-	--	-	--	-	--	-
...FRAGILARIACEAE								
....FRAGILARIA	14	4	--	-	90	6	--	-
....SYNEDRA	--	-	--	-	13	1	--	-
...GOMPHONEMATACEAE								
....GOMPHONEMA	--	-	14	2	26	2	13	2
...NAVICULACEAE								
....NAVICULA	--	-	29	4	13	1	13	2
...NITZSCHIACEAE								
....NITZSCHIA	--	-	100	15	77	5	210#	26
CYANOPHYTA (BLUE-GREEN ALGAE)								
.CYANOPHYCEAE								
..CHROOCOCCALES								
...CHROOCOCCACEAE								
....ANACYSTIS	--	-	--	-	--	-	--	-
..HORMOGONALES								
...OSCILLATORIACEAE								
....OSCILLATORIA	--	-	--	-	1200#	76	520#	65
....SCHIZOTHRIX	--	-	--	-	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)								
.EUGLENOPHYCEAE								
..EUGLENALES								
...EUGLENACEAE								
....EUGLENA	--	-	--	-	13	1	--	-
....TRACHELOMONAS	--	-	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

12353000 CLARK FORK BELOW MISSOULA, MT--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

PHYTOPLANKTON

DATE	JUL 17,79	AUG 9,79	SEP 11,79
TIME	1500	1100	1500
TOTAL CELLS/ML	1100	1200	2000
DIVERSITY: DIVISION	0.6	1.6	1.6
.CLASS	0.6	1.6	1.6
..ORDER	1.0	2.1	1.8
...FAMILY	3.0	2.5	3.1
....GENUS	3.2	2.5	3.2

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...COELASTRACEAE						
....COELASTRUM	--	-	--	-	60	3
...HYDRODICTYACEAE						
....PEDIASTRUM	--	-	--	-	140	7
...OOCYSTACEAE						
....ANKISTRODESMUS	28	2	13	1	110	5
....CHLORELLA	--	-	--	-	30	1
....SELENASTRUM	--	-	13	1	--	-
....TREUBARIA	--	-	--	-	--	-
...SCENEDESMACEAE						
....SCENEDESMUS	--	-	280#	24	440#	22
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CHLAMYDOMONAS	28	2	26	2	--	-
..ZYGNEMATALES						
...DESMIDIACEAE						
....COSMARIUM	--	-	--	-	*	0
CHRYSOPHYTA						
.BACILLARIOPHYCEAE						
..CENTRALES						
...COSCINODISCACEAE						
....CYCLOTELLA	83	7	150	11	130	6
....STEPHANODISCUS	--	-	--	-	--	-
..PENNALES						
...ACHNANTHACEAE						
....ACHNANTHES	14	1	--	-	--	-
....COCCONEIS	56	5	13	1	--	-
...CYMBELLACEAE						
....CYMBELLA	310#	27	90	8	210	10
....EPITHEMIA	42	4	--	-	--	-
...DIATOMACEAE						
....DIATOMA	110	10	--	-	69	3
...FRAGILARIACEAE						
....FRAGILARIA	--	-	--	-	--	-
....SYNEDRA	130	11	--	-	79	4
...GOMPHONEMATACEAE						
....GOMPHONEMA	28	2	--	-	--	-
...NAVICULACEAE						
....NAVICULA	42	4	26	2	160	8
...NITZSCHIACEAE						
....NITZSCHIA	190#	17	65	6	99	5
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..CHROOCOCCALES						
...CHROOCOCCACEAE						
....ANACYSTIS	--	-	39	3	--	-
..HORMOGONALES						
...OSCILLATORIACEAE						
....OSCILLATORIA	--	-	470#	40	--	-
....SCHIZOTHRIX	--	-	--	-	500#	25
EUGLENOPHYTA (EUGLENOIDS)						
.EUGLENOPHYCEAE						
..EUGLENALES						
...EUGLENACEAE						
....EUGLENA	--	-	--	-	--	-
....TRACHELOMONAS	56	5	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

12353000 CLARK FORK BELOW MISSOULA, MT--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

PERIPHYTON

DATE	TIME	LENGTH OF EXPO-SURE (DAYS) (00022)	PERI-PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M (00573)	PERI-PHYTON BIOMASS ASH WEIGHT G/SQ M (00572)	CHLOR-A PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2) (70957)	CHLOR-B PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2) (70958)	BIOMASS CHLORO-PHYLL RATIO PERI-PHYTON (UNITS) (70950)
MAY							
22...	1500	27	1.42	1.18	5.18	1.71	46.3
AUG							
09...	1100	23	6.54	4.33	12.4	.860	178
SEP							
11...	1500	33	49.4	40.1	11.4	.202	816

12353280 NINEMILE CREEK NEAR HUSON, MT

LOCATION.--Lat 47°03'47", long 114°24'46", near center of NW¼ sec.17, T.15 N., R.22 W., Missoula County, Hydrologic Unit 17010204, on right bank, 0.7 mi (1.1 km) southwest of Ninemile ranger station, 2.8 mi (4.5 km) upstream from mouth, and 4.8 mi (7.7 km) northwest of Huson.

DRAINAGE AREA.--170 mi^2 (440 km^2).

PERIOD OF RECORD.--August 1973 to current year.

GAGE.--Water-stage recorder. Datum of gage is 3,027.66 ft (922.831 m) National Geodetic Vertical Datum of 1929 (Missoula County bench mark).

REMARKS.--Records good except those for winter period, which are poor. Diversions for irrigation of about 2,100 acres (85.0 km^2) above station. Several observations of water temperature were made during the year and are available in files of Helena district office.

AVERAGE DISCHARGE.--6 years, 132 ft^3/s (3.738 m^3/s), 10.54 in/yr (268 mm/yr), 95,630 acre-ft/yr (118 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, about 1,700 ft^3/s (48.1 m^3/s) Jan. 16, 1974; maximum gage height, 6.7 ft (2.04 m) Jan. 15, 1974 (ice jam); minimum discharge, 9.4 ft^3/s (0.27 m^3/s) Dec. 23, 1974, gage height, 3.14 ft (0.957 m), result of freezeup; minimum gage height, 2.78 ft (0.847 m) Aug. 18, 1973.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 650 ft^3/s (18.4 m^3/s) and maximums (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
May 6	0700	828	23.4	5.53	1.686	May 24	1015	*1,030	29.2	*5.85	1.783
May 16	1445	864	24.5	5.59	1.704						

Minimum daily discharge, 16 ft^3/s (0.45 m^3/s) Jan. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	36	28	33	16	21	32	115	754	355	97	34	34
2	36	29	32	17	23	32	108	709	335	102	31	32
3	36	29	32	18	25	32	104	657	343	96	30	31
4	36	32	35	19	27	32	101	662	371	93	29	31
5	34	31	33	18	29	31	109	765	386	94	28	33
6	34	29	28	18	31	33	142	805	366	88	26	33
7	34	29	23	17	30	51	189	675	333	89	27	33
8	34	30	24	17	29	77	221	548	295	80	27	30
9	33	33	25	18	32	69	254	459	266	77	26	30
10	33	32	26	19	34	65	257	403	247	73	26	30
11	32	31	27	20	35	67	236	379	239	71	25	29
12	32	31	26	21	34	77	214	391	238	71	26	29
13	31	30	25	23	32	82	207	420	235	68	26	28
14	32	29	26	22	30	83	199	482	223	64	29	27
15	31	30	27	21	32	91	200	582	208	62	29	26
16	31	31	27	20	34	102	217	816	193	60	29	26
17	31	32	26	20	36	115	302	816	188	58	28	25
18	31	33	27	21	38	124	390	714	217	50	28	24
19	31	31	28	22	37	129	323	654	190	48	28	24
20	30	30	30	24	36	129	269	644	177	48	30	24
21	30	29	32	26	35	134	239	659	165	48	31	23
22	29	30	34	25	35	139	242	753	155	47	32	23
23	29	31	33	23	34	141	239	864	146	45	31	23
24	28	32	35	21	33	154	228	995	137	44	29	22
25	28	33	33	20	34	179	235	929	130	42	29	22
26	28	34	30	21	33	174	282	858	122	41	30	22
27	28	33	27	22	32	168	357	880	117	40	28	21
28	28	32	24	22	32	148	461	756	111	41	31	21
29	28	32	22	21	---	136	550	600	104	47	29	21
30	29	33	20	20	---	126	627	487	96	42	27	21
31	28	---	18	19	---	120	---	407	---	38	29	---
TOTAL	971	929	866	631	893	3072	7617	20525	6688	1964	890	798
MEAN	31.3	31.0	28.0	20.4	31.9	99.1	254	662	223	63.4	28.7	26.6
MAX	36	34	35	26	38	179	627	995	386	102	34	34
MIN	28	28	18	16	21	31	101	379	96	38	25	21
CFSM	.18	.18	.17	.12	.19	.58	1.49	3.89	1.31	.37	.17	.16
IN.	.21	.20	.19	.14	.20	.67	1.67	4.49	1.46	.43	.19	.17
AC-FT	1930	1840	1720	1250	1770	6090	15110	40710	13270	3900	1770	1580

CAL YR 1978 TOTAL 55348 MEAN 152 MAX 800 MIN 18 CFSM .89 IN 12.11 AC-FT 109800
WTR YR 1979 TOTAL 45844 MEAN 126 MAX 995 MIN 16 CFSM .74 IN 10.03 AC-FT 90930

12354500 CLARK FORK AT ST. REGIS, MT

LOCATION.--Lat 47°18'07", long 115°05'11", near center of SW¼ sec.19, T.18 N., R.27 W., Mineral County, Hydrologic Unit 17010204, on left bank at St. Regis, 0.4 mi (0.6 km) downstream from St. Regis River, and at mile 270.3 (434.9 km).

DRAINAGE AREA.--10,709 mi^2 (27,736 km^2).

PERIOD OF RECORD.--October 1910 to current year. Monthly discharge only for some periods, published in WSP 1316.

REVISED RECORDS.--WSP 1246: Drainage area. WSP 1316: 1916-17, 1920, 1929-31(M), 1933(M).

GAGE.--Water-stage recorder. Datum of gage is 2,600.37 ft (792.593 m) National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to Nov. 29, 1933, nonrecording gage at same site and datum.

REMARKS.--Records good. Diversions for irrigation of about 244,000 acres (987 km^2) above station. Several observations of water temperature were made during the year and are available in files of Helena district office.

AVERAGE DISCHARGE.--69 years, 7,565 ft^3/s (214.2 m^3/s), 5,481,000 acre-ft/yr (6.76 km^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 68,900 ft^3/s (1,950 m^3/s) May 24, 1948, gage height, 19.96 ft (6.084 m), from graph based on gage readings; minimum, 1,000 ft^3/s (28.3 m^3/s) Dec. 17, 1940, gage height, 3.36 ft (1.024 m), but may have been less during periods of ice effect in several years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 38,600 ft^3/s (1,090 m^3/s) May 28, gage height, 15.37 ft (4.685 m); minimum daily, 1,100 ft^3/s (31.2 m^3/s) Dec. 31.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4100	3200	3230	1200	2200	3130	4700	15700	22200	9870	2920	3070
2	4020	3180	3230	1300	2300	3070	4560	16900	20400	9450	2810	3280
3	4000	3170	3070	1500	2300	2940	4400	17300	19900	8850	2700	3300
4	4000	3250	3000	1700	2400	2890	4280	17800	21300	8140	2640	3220
5	3970	3270	3150	1800	2500	2860	4240	20200	23300	7730	2580	3130
6	3910	3280	3200	1900	2600	2990	4440	22600	24200	7510	2490	3070
7	3860	3250	3020	1950	2700	3450	4910	22100	23600	7210	2420	3000
8	3800	3230	2540	1900	3000	4380	5530	19900	21000	6850	2360	2960
9	3750	3330	2310	2000	3200	5040	6110	17700	18800	6550	2340	2920
10	3710	3380	2350	2100	3500	5040	6380	16000	17200	6250	2300	2840
11	3640	3200	2700	2300	3800	4750	6520	14700	16800	5940	2270	2750
12	3610	2690	3040	2400	4200	4660	6380	14000	17800	5640	2230	2700
13	3520	2670	3020	2500	4800	4750	6220	13900	19500	5480	2210	2670
14	3500	2880	2860	2600	5400	4910	6060	14300	20300	4960	2250	2660
15	3490	2960	2610	2700	5600	4890	5990	15800	19800	4810	2310	2630
16	3490	2830	2770	2700	4720	4910	5940	19100	17900	4580	2420	2600
17	3470	2890	2780	2600	4160	5110	6310	23200	16500	4420	2480	2550
18	3440	3170	2690	2500	3860	5460	7170	24300	16800	4260	2510	2490
19	3420	3300	2730	2500	3770	5550	7810	24200	17600	4020	2520	2460
20	3400	2570	2860	2600	3630	5390	7910	24200	16900	3890	2570	2420
21	3350	2120	2880	2700	3420	5330	7680	25000	15600	3700	2600	2380
22	3320	2260	2910	2800	3250	5200	7560	26500	15000	3590	2720	2340
23	3280	2600	3000	2700	3120	5110	7580	29300	14900	3500	2810	2320
24	3270	2990	2990	2600	2960	5090	7790	33100	14100	3420	2910	2300
25	3270	3280	2990	2550	2920	5220	7910	36700	13400	3320	2920	2260
26	3250	3300	3020	2500	2910	5420	8070	38100	13000	3220	2890	2250
27	3250	3370	3020	2500	3040	5530	8510	38200	12500	3120	2910	2250
28	3220	3330	2780	2500	3120	5330	9310	38200	12000	3050	2920	2270
29	3230	3250	1940	2400	---	5060	10800	34900	11000	3070	2960	2310
30	3220	3220	1240	2300	---	4910	13200	29800	10400	3050	2920	2360
31	3200	---	1100	2200	---	4850	---	25400	---	2990	2910	---
TOTAL	109960	91420	85030	70500	95380	143270	204270	729100	523700	162440	80800	79760
MEAN	3547	3047	2743	2274	3406	4622	6809	23520	17460	5240	2606	2659
MAX	4100	3380	3230	2800	5600	5550	13200	38200	24200	9870	2960	3300
MIN	3200	2120	1100	1200	2200	2860	4240	13900	10400	2990	2210	2250
CFSM	.33	.29	.26	.21	.32	.43	.64	2.20	1.63	.49	.24	.25
IN.	.38	.32	.30	.24	.33	.50	.71	2.53	1.82	.56	.28	.28
AC-FT	218100	181300	168700	139800	189200	284200	405200	1446000	1039000	322200	160300	158200

CAL YR 1978 TOTAL 3025650 MEAN 8289 MAX 37500 MIN 1100 CFSM .77 IN 10.51 AC-FT 6001000
WTR YR 1979 TOTAL 2375630 MEAN 6509 MAX 38200 MIN 1100 CFSM .61 IN 8.25 AC-FT 4712000

12355000 FLATHEAD RIVER AT FLATHEAD, BRITISH COLUMBIA

(International gaging station)

LOCATION.--Lat 49°00'02", long 114°28'35", Hydrologic Unit 17010206, on right bank 45 ft (14 m) north of international boundary at Flathead, British Columbia, 1.6 mi (2.6 km) upstream from Sage Creek, 6.5 mi (10.5 km) northwest of Trail Creek, Mt., and at mile 216.6 (348.5 km).

DRAINAGE AREA.--427 mi^2 (1,106 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1929 to current year (no winter records prior to 1952). Prior to October 1934, published as Flathead River near Trail Creek, Mt. October 1970 to September 1972, published as North Fork Flathead River at Flathead, British Columbia.

REVISED RECORDS.--WSP 1092: 1933 (maximum gage height only).

GAGE.--Water-stage recorder. Datum of gage is 3,968.16 ft (1,209.495 m), National Geodetic Vertical Datum of 1929. Prior to Sept. 1, 1949, nonrecording gage, and Sept. 1, 1949, to Oct. 4, 1964, water-stage recorder, at site 1,200 ft (370 m) upstream at datum 7.80 ft (2.377 m) higher. Oct. 5, 1964, to Aug. 1, 1973, water-stage recorder at site on left bank 155 ft (47 m) upstream at datum 1.42 ft (0.433 m) lower.

REMARKS.--Water-discharge records good except those for winter period, which are fair.

COOPERATION.--This is one of a number of stations which are maintained jointly by Canada and the United States.

AVERAGE DISCHARGE.--28 years (1951-79), 959 ft^3/s (27.16 m^3/s), 30.50 in/yr (775 mm/yr), 694,800 acre-ft/yr (857 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 16,300 ft^3/s (462 m^3/s) June 8, 1964, gage height, 8.00 ft (2.438 m), in gage well, 8.6 ft (2.62 m), from outside floodmarks, site and datum then in use, from rating curve extended above 8,000 ft^3/s (230 m^3/s) on basis of slope-area measurement of peak flow; minimum daily, 62 ft^3/s (1.76 m^3/s) Jan. 2, 1977, but may have been less during periods of no winter record.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6,930 ft^3/s (196 m^3/s) May 27, gage height, 5.41 ft (1.649 m); minimum daily, 69 ft^3/s (1.95 m^3/s) Jan. 25, Feb. 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	443	254	234	116	71	102	163	2030	2410	895	352	223
2	456	255	218	118	69	96	165	1870	2660	1020	341	222
3	428	260	258	120	75	92	165	1820	3620	945	328	229
4	405	509	298	122	76	120	161	1900	4100	867	316	236
5	389	572	246	123	79	208	163	2870	4210	847	304	241
6	383	480	251	124	81	208	175	3740	5280	827	290	232
7	372	458	230	127	81	205	224	2900	3700	802	280	222
8	357	568	190	129	75	199	237	2260	2870	769	276	213
9	350	613	205	131	75	196	260	1880	2540	731	273	208
10	342	444	221	132	77	194	280	1780	2560	698	270	206
11	343	419	221	134	83	189	273	1800	2640	681	269	200
12	337	422	221	137	97	188	262	2090	2830	628	267	195
13	325	445	209	140	105	182	250	2350	2740	578	260	192
14	316	418	190	139	106	178	256	2750	2360	527	259	188
15	310	452	205	139	103	177	249	3060	2040	542	264	183
16	299	504	199	143	104	181	253	4250	1800	549	262	178
17	294	463	190	148	110	187	297	4520	1720	539	257	176
18	286	302	196	147	114	190	405	4410	1720	506	253	174
19	279	262	207	150	118	189	402	4080	1760	501	250	172
20	273	254	209	156	119	185	404	3730	1660	492	256	171
21	278	251	209	140	114	173	391	3850	1560	483	256	169
22	276	311	202	112	110	169	395	4490	1410	478	281	168
23	270	444	196	114	109	169	398	4720	1330	476	257	166
24	277	483	205	84	113	175	386	5710	1240	435	246	165
25	283	427	196	69	120	186	400	6070	1180	442	246	164
26	282	381	183	70	122	178	492	6050	1120	454	246	164
27	276	361	190	74	120	168	634	6520	1070	436	233	161
28	273	340	174	72	106	170	905	4950	1020	422	232	153
29	295	272	142	71	---	172	1300	3660	953	400	229	145
30	286	276	126	70	---	174	1700	2920	917	380	224	137
31	262	---	114	75	---	174	---	2520	---	372	225	---
TOTAL	10045	11900	6335	3626	2732	5374	12045	107550	67020	18722	8304	5653
MEAN	324	397	204	117	97.6	173	402	3469	2234	604	268	188
MAX	456	613	298	156	122	208	1700	6520	5280	1020	352	241
MIN	262	251	114	69	69	92	161	1780	917	372	224	137
CFSM	.76	.93	.48	.27	.23	.41	.94	8.12	5.23	1.42	.63	.44
IN.	.88	1.04	.55	.32	.24	.47	1.05	9.37	5.84	1.63	.72	.49
AC-FT	19920	23600	12570	7190	5420	10660	23890	213300	132900	37140	16470	11210

CAL YR 1978 TOTAL 314656 MEAN 862 MAX 6090 MIN 92 CFSM 2.02 IN 27.41 AC-FT 624100
WTR YR 1979 TOTAL 259306 MEAN 710 MAX 6520 MIN 69 CFSM 1.66 IN 22.59 AC-FT 514300

12355000 FLATHEAD RIVER AT FLATHEAD, BRITISH COLUMBIA--Continued
(National Stream Quality Accounting Network)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1970, 1975 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: November 1974 to current year.
WATER TEMPERATURES: November 1974 to current year.
SUSPENDED-SEDIMENT DISCHARGE: April 1975 to October 1978 (discontinued).

INSTRUMENTATION.--Temperature recorder since October 1, 1975.

REMARKS.--Once-daily temperature published for missing continuous record.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 309 micromhos Jan. 12, 28, 1975; minimum daily, 130 micromhos May 20, 1976.
WATER TEMPERATURES: Maximum, 19.5°C Aug. 2, 1977; minimum, 0.0°C on many days during winter periods.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 1,310 mg/L June 20, 1975; minimum daily mean, 1 mg/L on many days most years.
SEDIMENT LOADS: Maximum daily, 36,100 tons (32,700 megagrams) June 20, 1975; minimum daily, 0.25 ton (0.23 megagram) Jan. 2, 1978.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 288 micromhos Mar. 22; minimum daily, 131 micromhos May 17, 19-21.
WATER TEMPERATURES: Maximum recorded, 18.5°C Aug. 21; minimum, 0.0°C on many days during November to April.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE (DEG C) (00010)	TURBIDITY (NTU) (00076)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)
OCT											
18...	1200	293	1	267	8.3	4.0	5.0	.10	11.6	104	<1
NOV											
22...	1200	311	3	276	8.0	-15.0	.0	.00	12.5	99	<1
DEC											
19...	1200	207	2	277	8.3	-4.0	.0	.20	12.8	99	<1
JAN											
25...	1500	69	1	287	8.1	-10.0	.0	.40	12.4	99	--
MAR											
08...	1200	199	1	270	8.2	-2.0	.0	1.6	12.4	96	K7
JUN											
04...	1430	4260	1	169	7.5	17.5	7.0	27	10.4	10.	23
25...	1230	1230	0	202	7.9	20.5	8.5	2.1	10.6	104	<1
JUL											
16...	1100	525	0	245	7.8	15.5	10.5	1.1	10.0	102	K2
30...	1000	340	0	249	7.7	21.5	10.5	1.0	10.0	103	K7
AUG											
28...	1100	222	1	269	8.4	20.5	11.5	.50	9.8	104	--
SEP											
27...	1300	156	1	277	8.4	17.0	11.0	.30	10.3	108	<1

DATE	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY (MG/L AS CACO3) (00410)	SULFATE DISSOLVED (MG/L AS SO4) (00945)
OCT										
18...	K1	140	12	44	7.9	.7	.0	.3	130	7.7
NOV										
22...	K5	140	6	40	8.7	.8	.0	.3	130	6.9
DEC										
19...	K3	140	14	43	8.8	.7	.0	.3	130	7.1
JAN										
25...	<1	150	6	43	9.3	.8	.0	.2	140	7.8
MAR										
08...	23	140	7	41	8.5	.8	.0	.3	130	5.9
JUN										
04...	K9	84	9	25	5.3	.8	.0	.5	75	6.3
25...	K2	100	6	30	6.8	.7	.0	.3	97	6.7
JUL										
16...	21	120	3	36	8.1	.8	.0	.4	120	9.6
30...	100	140	5	41	8.0	1.4	.1	.9	130	9.6
AUG										
28...	K6	140	15	43	9.1	1.0	.0	.3	130	9.7
SEP										
27...	K20	150	12	45	9.7	.9	.0	.3	140	9.8

12355000 FLATHEAD RIVER AT FLATHEAD, BRITISH COLUMBIA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)
OCT 18...	.4	.1	4.6	130	144	.18	103	.01	.00
NOV 22...	.3	.1	4.4	151	140	.21	127	.04	.01
DEC 19...	.3	.1	4.6	146	143	.20	81.6	.03	.00
JAN 25...	.6	.1	4.6	148	151	.20	27.6	.02	.00
MAR 08...	.3	.1	4.6	155	138	.21	83.3	.03	.00
JUN 04...	.3	.2	3.6	86	87	.12	989	.04	.03
25...	.3	.1	4.1	110	107	.15	365	.01	.01
JUL 16...	.4	.1	4.6	124	132	.17	176	.01	.04
30...	.4	.3	4.4	135	144	.18	124	.00	.01
AUG 28...	.6	.3	4.8	150	147	.20	89.9	.02	.01
SEP 27...	.2	.1	4.9	149	155	.20	62.8	.03	.00

DATE	NITROGEN, AMMONIA DISSOLVED (MG/L AS N) (00608)	NITROGEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITROGEN, ORGANIC DISSOLVED (MG/L AS N) (00607)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)	PHOSPHORUS, DISSOLVED (MG/L AS P) (00666)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CARBON, ORGANIC DISSOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUSPENDED TOTAL (MG/L AS C) (00689)
OCT 18...	.00	.15	.18	.15	.18	.000	.000	--	2.9	.2
NOV 22...	.00	.17	.22	.18	.22	.003	.001	1.7	--	--
DEC 19...	--	.05	--	.05	.01	.008	.008	.6	--	--
JAN 25...	--	.05	--	.05	.05	.003	.003	--	.6	.2
MAR 08...	--	.05	--	.05	.04	.004	.003	1.6	--	--
JUN 04...	--	--	--	--	.01	.004	.002	--	1.8	.9
25...	.00	--	.11	--	.11	.017	.008	2.1	--	--
JUL 16...	--	.21	--	.25	.23	.005	.004	1.6	--	--
30...	--	.13	--	.14	.14	.005	.000	1.0	--	--
AUG 28...	--	--	--	--	.27	.008	.034	2.6	--	--
SEP 27...	--	.83	--	.83	.38	.002	.000	--	3.0	.5

DATE	TIME	ALUMINUM, TOTAL RECOVERABLE (UG/L AS AL) (01105)	ALUMINUM, DISSOLVED (UG/L AS AL) (01106)	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DISSOLVED (UG/L AS AS) (01000)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA) (01007)	BARIUM, DISSOLVED (UG/L AS BA) (01005)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD) (01027)	CADMIUM DISSOLVED (UG/L AS CD) (01025)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)
OCT 18...	1200	0	0	1	1	100	0	0	0	0
JAN 25...	1500	--	--	0	1	0	60	6	5	20
JUN 04...	1430	--	--	1	0	100	0	1	1	10
SEP 27...	1300	--	--	1	1	0	80	0	--	10

12355000 FLATHEAD RIVER AT FLATHEAD, BRITISH COLUMBIA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO) (01037)	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)
OCT										
18...	0	0	0	2	2	50	20	1	1	10
JAN										
25...	0	2	<3	2	3	20	<10	18	--	0
JUN										
04...	10	0	0	6	0	1400	10	15	0	50
SEP										
27...	10	0	<3	0	0	30	<10	8	4	0

DATE	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG) (01077)	SILVER, DIS-SOLVED (UG/L AS AG) (01075)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
OCT									
18...	10	.0	.0	0	0	0	0	10	10
JAN									
25...	1	.0	.0	0	0	0	0	10	6
JUN									
04...	0	.0	.0	0	0	0	0	20	10
SEP									
27...	<1	.0	.0	0	0	0	0	0	<3

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	253	---	264	---	239	281	278	170	157	205	255	271
2	251	---	265	---	---	288	280	171	158	206	260	271
3	253	---	269	---	232	286	279	174	159	206	258	271
4	256	---	258	---	230	282	279	172	160	211	258	270
5	258	---	272	---	230	277	268	174	166	214	259	270
6	260	---	263	---	230	254	270	173	167	215	260	271
7	261	---	284	---	233	262	269	176	168	220	260	271
8	260	---	279	---	229	277	273	176	169	221	260	271
9	260	---	235	---	225	278	272	178	167	221	260	272
10	262	---	268	231	224	275	268	176	160	225	261	275
11	261	---	262	227	223	279	273	148	160	227	260	278
12	262	---	262	225	223	266	273	146	161	225	259	272
13	263	---	272	226	---	276	273	147	168	242	261	271
14	267	---	277	230	226	278	274	147	175	243	262	276
15	263	---	266	236	241	277	275	148	172	246	264	280
16	262	---	267	235	---	271	275	146	177	245	262	278
17	264	---	269	233	230	270	275	131	178	248	263	276
18	264	---	264	230	---	276	273	132	179	248	254	277
19	265	---	264	231	230	274	277	131	178	---	255	280
20	267	---	266	232	230	277	275	131	180	---	253	277
21	267	---	266	229	234	278	281	131	183	---	254	274
22	265	255	264	200	236	278	277	147	185	---	270	278
23	266	249	264	229	230	279	276	136	189	---	263	276
24	265	247	260	231	235	274	274	136	189	---	267	278
25	264	247	268	232	231	275	263	137	195	247	266	280
26	267	248	274	235	228	277	267	136	195	248	267	280
27	267	249	271	231	222	277	267	142	196	247	266	281
28	---	250	273	234	233	277	228	138	196	249	267	279
29	---	253	279	200	---	279	231	151	200	249	268	280
30	---	254	282	240	---	278	238	150	199	248	267	280
31	---	---	279	240	---	277	---	149	---	254	268	---
MEAN	262	250	268	229	230	276	269	152	176	232	262	275

WTR YR 1979 MEAN 240 MAX 288 MIN 131

12355000 FLATHEAD RIVER AT FLATHEAD, BRITISH COLUMBIA--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1							---	5.0				
2							---	5.5				
3							---	6.0				
4							---	5.0				
5							---	6.0				
6							---	5.0				
7							---	4.0				
8							---	5.5				
9							---	7.0				
10							---	5.0				
11							---	6.0				
12							---	6.0				
13							---	6.5				
14							---	6.0				
15							---	5.5				
16							---	6.0				
17							---	7.0				
18							---	7.5				
19							---	7.0				
20							---	7.0				
21							---	7.0				
22							---	8.5				
23							---	8.0				
24							3.0	---				
25							4.0	---				
26							5.5	---				
27							5.5	---				
28							4.0	---				
29							4.5	---				
30							4.5	---				
31							---	---				
MEAN							4.5	6.0				

WTR YR 1979 MEAN 6.0 MAX 8.5 MIN 3.0

12355000 FLATHEAD RIVER AT FLATHEAD, BRITISH COLUMBIA--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	9.5	7.5	8.0	3.5	1.0	2.5	.0	.0	.0	.0	.0	.0
2	8.5	5.0	7.0	4.0	1.5	3.0	.0	.0	.0	.0	.0	.0
3	8.0	5.5	7.0	4.5	3.5	4.0	.0	.0	.0	.0	.0	.0
4	8.0	4.5	6.5	4.5	2.5	4.0	.0	.0	.0	.0	.0	.0
5	8.0	4.5	6.5	2.5	1.0	2.0	.0	.0	.0	.0	.0	.0
6	8.0	4.5	6.5	3.0	1.5	2.5	.0	.0	.0	.0	.0	.0
7	8.5	5.0	6.5	5.0	3.0	4.0	.0	.0	.0	.0	.0	.0
8	8.5	5.0	7.0	5.0	2.5	4.0	.0	.0	.0	.0	.0	.0
9	8.5	5.0	7.0	2.5	.0	1.0	.0	.0	.0	.0	.0	.0
10	9.0	7.5	8.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11	8.0	6.0	7.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12	6.5	4.0	5.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13	6.0	3.0	4.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
14	6.5	3.0	5.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
15	7.0	3.5	5.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
16	7.0	4.5	6.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
17	7.5	5.0	6.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
18	7.0	4.0	6.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
19	7.0	4.5	5.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
20	7.0	5.0	6.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
21	6.5	4.0	5.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
22	4.5	2.5	3.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
23	6.0	4.0	5.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
24	6.0	4.5	5.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
25	5.0	3.0	4.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
26	4.5	2.0	3.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
27	4.5	3.5	4.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
28	5.0	4.0	4.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
29	5.0	4.0	4.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
30	4.5	3.0	4.0	.5	.0	.0	.0	.0	.0	.0	.0	.0
31	3.0	1.5	2.5	---	---	---	.0	.0	.0	.0	.0	.0
MONTH	9.5	1.5	5.5	5.0	.0	1.0	.0	.0	.0	.0	.0	.0
		FEBRUARY			MARCH			APRIL			MAY	
1	.0	.0	.0	.0	.0	.0	2.0	.0	1.0	---	---	---
2	.0	.0	.0	.0	.0	.0	3.0	.0	1.5	---	---	---
3	.0	.0	.0	.0	.0	.0	2.0	.0	1.0	---	---	---
4	.0	.0	.0	.0	.0	.0	3.0	1.0	2.0	---	---	---
5	.0	.0	.0	.0	.0	.0	5.0	2.0	3.5	---	---	---
6	.0	.0	.0	.0	.0	.0	7.0	3.0	5.0	---	---	---
7	.0	.0	.0	.0	.0	.0	5.5	3.0	4.5	---	---	---
8	.0	.0	.0	.0	.0	.0	6.0	1.5	4.0	---	---	---
9	.0	.0	.0	.0	.0	.0	4.5	3.0	3.5	---	---	---
10	.0	.0	.0	.0	.0	.0	4.0	2.0	3.0	---	---	---
11	.0	.0	.0	.0	.0	.0	5.0	1.5	3.0	---	---	---
12	.0	.0	.0	.0	.0	.0	4.5	2.5	3.5	---	---	---
13	.0	.0	.0	.0	.0	.0	5.0	2.5	4.0	---	---	---
14	.0	.0	.0	.0	.0	.0	5.0	3.0	4.0	---	---	---
15	.0	.0	.0	.0	.0	.0	6.5	2.0	4.0	---	---	---
16	.0	.0	.0	.0	.0	.0	4.5	2.5	3.5	---	---	---
17	.0	.0	.0	.5	.0	.0	6.0	3.0	4.0	---	---	---
18	.0	.0	.0	3.5	.5	2.0	5.5	2.5	3.5	---	---	---
19	.0	.0	.0	3.0	1.5	2.5	5.5	3.0	4.0	---	---	---
20	.0	.0	.0	4.0	.5	2.5	5.5	2.5	4.0	---	---	---
21	.0	.0	.0	4.0	.5	2.0	6.5	2.0	4.5	---	---	---
22	.0	.0	.0	3.5	1.5	2.5	4.5	2.5	4.0	---	---	---
23	.0	.0	.0	5.0	1.0	3.0	4.5	3.0	3.5	---	---	---
24	.0	.0	.0	5.5	1.5	3.5	---	---	---	6.0	---	---
25	.0	.0	.0	3.0	1.0	2.0	---	---	---	8.5	4.5	6.5
26	.0	.0	.0	1.0	.0	.5	---	---	---	9.0	5.0	6.5
27	.0	.0	.0	.0	.0	.0	---	---	---	8.0	5.0	6.5
28	.0	.0	.0	.5	.0	.0	---	---	---	6.5	4.0	5.0
29	---	---	---	3.5	.0	1.5	---	---	---	7.5	4.0	5.5
30	---	---	---	3.0	1.0	2.0	---	---	---	6.5	4.5	5.5
31	---	---	---	2.0	.5	1.0	---	---	---	8.5	3.5	6.0
MONTH	.0	.0	.0	5.5	.0	1.0	7.0	.0	3.5	9.0	3.5	6.0

12355000 FLATHEAD RIVER AT FLATHEAD, BRITISH COLUMBIA--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	9.5	4.5	7.0	10.5	8.5	9.5	17.5	11.0	14.5	14.5	9.5	12.0
2	10.5	6.0	8.0	10.5	7.0	8.5	17.0	11.5	14.0	14.0	10.0	12.0
3	10.5	6.0	8.0	13.5	6.5	10.0	16.5	11.0	14.0	13.0	11.0	12.0
4	9.0	6.0	7.5	14.5	8.5	11.5	17.0	11.0	14.0	11.5	9.0	10.5
5	7.5	5.5	6.5	14.5	9.5	12.0	17.0	11.5	14.5	13.0	8.5	10.5
6	7.5	4.5	6.0	15.0	10.0	12.5	16.5	10.5	13.5	13.5	8.5	11.0
7	8.0	4.5	6.5	15.0	10.0	12.5	17.0	10.5	14.0	14.5	9.5	12.0
8	9.0	5.0	7.0	15.5	9.5	12.5	17.0	10.5	14.0	14.5	9.5	12.5
9	10.0	5.5	8.0	15.5	9.5	12.5	17.0	11.0	14.5	13.5	10.5	11.5
10	10.0	6.0	8.0	15.0	10.5	13.0	17.5	11.0	14.5	11.5	7.5	9.5
11	12.0	6.5	9.0	12.0	9.0	10.5	15.5	11.5	13.5	11.5	7.0	9.5
12	11.5	7.0	9.5	12.5	9.0	10.0	17.0	10.5	13.5	12.5	8.0	10.5
13	11.0	7.0	9.0	13.5	8.0	11.0	15.0	11.0	13.0	12.5	7.0	10.0
14	10.0	5.5	7.5	14.0	9.0	11.5	13.0	11.5	12.5	13.0	7.5	10.5
15	9.5	5.5	7.5	14.0	9.5	12.0	15.5	10.5	13.0	13.5	7.5	11.0
16	10.0	5.5	8.0	16.0	9.0	13.0	17.0	10.0	13.5	14.0	9.0	11.5
17	9.5	7.5	8.5	17.0	10.5	14.0	16.0	10.5	13.5	13.5	8.0	11.0
18	11.0	7.0	9.0	17.5	11.0	14.5	15.5	11.0	13.5	13.5	8.0	11.0
19	11.0	7.5	9.0	15.0	11.5	14.0	15.0	12.0	13.5	13.5	8.5	11.5
20	10.0	7.0	8.5	15.5	11.0	13.5	17.0	11.5	14.5	13.5	8.5	11.5
21	10.0	6.0	8.5	17.0	11.0	14.0	18.5	13.0	15.5	13.0	9.0	11.5
22	11.5	6.5	9.0	18.0	12.5	15.0	---	---	---	12.0	8.0	10.5
23	12.5	6.5	9.5	16.5	11.5	14.5	---	---	---	12.0	7.5	10.0
24	13.0	7.0	10.0	14.5	11.5	13.0	---	---	---	12.0	7.0	9.5
25	13.5	7.5	11.0	13.5	9.5	11.5	---	---	---	11.5	7.0	9.5
26	14.0	8.0	11.0	15.5	9.0	12.5	---	---	---	13.0	8.5	11.0
27	14.0	9.0	11.5	16.0	10.5	13.5	---	---	---	12.5	8.5	10.5
28	15.0	8.0	11.5	14.5	10.5	12.5	15.5	---	---	11.0	8.5	9.5
29	13.5	9.0	11.5	15.0	10.5	13.0	16.5	10.0	13.5	10.0	5.5	8.0
30	12.5	9.5	11.0	15.5	11.0	13.5	16.0	11.0	13.5	10.5	6.5	8.5
31	---	---	---	17.0	10.5	14.0	14.0	11.0	12.5	---	---	---
MONTH	15.0	4.5	9.0	18.0	6.5	12.5	18.5	10.0	14.0	14.5	5.5	10.5
YEAR	18.5	.0	5.0									

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPER-ATURE (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT						
18...	1200	5.0	293	2	1.6	90
NOV						
22...	1200	.0	311	7	5.9	93
DEC						
19...	1200	.0	207	7	3.9	88
JAN						
25...	1500	.0	69	5	.93	71
MAR						
08...	1200	.0	199	7	3.8	87
JUN						
04...	1430	7.0	4260	92	1060	67
25...	1230	8.5	1230	12	40	75
JUL						
16...	1100	10.5	525	2	2.8	78
30...	1000	10.5	340	2	1.8	85
AUG						
28...	1100	11.5	222	6	3.6	82
SEP						
27...	1300	11.0	156	2	.84	71

12355000 FLATHEAD RIVER AT FLATHEAD, BRITISH COLUMBIA--Continued

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	12	14										
2	3	3.7										
3	1	1.2										
4	1	1.1										
5	1	1.1										
6	1	1.0										
7	1	1.0										
8	1	.96										
9	1	.95										
10	1	.92										
11	1	.93										
12	1	.91										
13	3	2.6										
14	5	4.3										
15	2	1.7										
16	3	2.4										
17	5	4.0										
18	2	1.5										
19	1	.75										
20	4	2.9										
21	4	3.0										
22	1	.75										
23	3	2.2										
24	2	1.5										
25	3	2.3										
26	5	3.8										
27	6	4.5										
28	---	---										
29	---	---										
30	---	---										
31	---	---										
TOTAL	---	65.97										

TOTAL LOAD FOR YEAR: 65.97 TONS.

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

PERIPHYTON

DATE	TIME	LENGTH OF EXPOSURE (DAYS) (00022)	PERIPHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M (00573)	PERIPHYTON BIOMASS ASH WEIGHT G/SQ M (00572)	CHLOR-A PERIPHYTON CHROMOGRAPHIC FLUOROM (MG/M2) (70957)	CHLOR-B PERIPHYTON CHROMOGRAPHIC FLUOROM (MG/M2) (70958)	BIOMASS CHLOROPHYLL RATIO PERIPHYTON (UNITS) (70950)
OCT							
18...	1200	27	2.20	1.65	.650	.130	846
JUL							
18...	1100	42	1.57	1.26	.760	.100	408
AUG							
28...	1100	29	.390	.390	.120	.000	.00

12355000 FLATHEAD RIVER AT FLATHEAD, BRITISH COLUMBIA--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

PHYTOPLANKTON

DATE TIME	NOV 22,78 1200	JUN 4,79 1430	JUL 16,79 1100	AUG 28,79 1100	SEP 27,79 1300
TOTAL CELLS/ML	370	0	110	37	52
DIVERSITY: DIVISION	0.0	0.0	0.5	0.2	0.0
.CLASS	0.0	0.0	0.5	0.2	0.0
..ORDER	0.0	0.0	0.5	0.2	0.0
...FAMILY	0.0	0.0	2.8	2.2	0.8
....GENUS	0.0	0.0	3.0	2.6	2.0

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)										
.CHLOROPHYCEAE										
..ZYGNEMATALES										
...DESMIDIACEAE										
....CLOSTERIUM	--	-	--	-	--	-	1	3	--	-
CHRYSOPHYTA										
.BACILLARIOPHYCEAE										
..CENTRALES										
...COSCINODISCACEAE										
....CYCLOTELLA	--	-	--	-	--	-	--	-	13#	25
..PENNALES										
...ACHNANTHACEAE										
....ACHNANTHES	--	-	--	-	14	13	1	3	--	-
....COCCONEIS	--	-	--	-	--	-	15#	41	13#	25
...CYMBELLACEAE										
....AMPHORA	--	-	--	-	--	-	7#	19	--	-
....CYMBELLA	--	-	--	-	14	13	--	-	--	-
...FRAGILARIACEAE										
....FRAGILARIA	--	-	--	-	14	13	--	-	--	-
....HANNAEA	--	-	--	-	--	-	2	6	--	-
....SYNEDRA	--	-	--	-	14	13	5	13	13#	25
...GOMPHONEMATACEAE										
....GOMPHONEMA	--	-	--	-	14	13	2	6	--	-
...NAVICULACEAE										
....NAVICULA	--	-	--	-	14	13	1	3	--	-
...NITZSCHIACEAE										
....NITZSCHIA	--	-	--	-	14	13	2	6	13#	25
CYANOPHYTA (BLUE-GREEN ALGAE)										
.CYANOPHYCEAE										
..HORMOGONALES										
...NOSTOCACEAE										
....ANABAENA	370#	100	--	-	--	-	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)										
.EUGLENOPHYCEAE										
..EUGLENALES										
...EUGLENACEAE										
....TRACHELOMONAS	--	-	--	-	14	13	--	-	--	-

12355500 NORTH FORK FLATHEAD RIVER NEAR COLUMBIA FALLS, MT

LOCATION.--Lat 48°29'44", long 114°07'36", in NE¼SW¼NW¼ sec.35, T.32 N., R.20 W., Flathead County, Hydrologic Unit 17010206, on right bank 1.5 mi (2.4 km) downstream from Canyon Creek, 3.8 mi (6.1 km) upstream from Middle Fork, 8.8 mi (14.2 km) northeast of Columbia Falls, and at mile 162.1 (260.8 km).

DRAINAGE AREA.--1,548 mi² (4,009 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1910 to September 1917 (no winter records in water years 1913, 1916, 1917), April 1929 to February 1935 (incomplete), June 1935 to current year. Monthly discharge only for some periods, published in WSP 1316. Published as Flathead River near Columbia Falls 1915-17, 1929-70.

REVISED RECORDS.--WSP 1216: Drainage area. WSP 1246: 1911, 1912(M), 1915-17(M), 1929(M), 1938-39(M), 1946(M).

GAGE.--Water-stage recorder. Datum of gage is 3,145.59 ft (958.776 m), National Geodetic Vertical Datum of 1929. September 1910 to September 1917 and April to August 1929, nonrecording gages, and May 1, 1930, to Sept. 30, 1962, water-stage recorder, all at site 2.7 mi (4.3 km) downstream at different datums.

REMARKS.--Water-discharge records good except those for winter period which are poor. A few small diversions from tributaries for irrigation of hay meadows above station.

AVERAGE DISCHARGE.--48 years (1910-12, 1913-15, 1935-79), 2,990 ft³/s (84.68 m³/s), 26.23 in/yr (666 mm/yr), 2,166,000 acre-ft/yr (2.67 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 69,100 ft³/s (1,960 m³/s) June 9, 1964, gage height, 18.60 ft (5.669 m), from floodmark, from rating curve extended above 37,000 ft³/s (1,050 m³/s) on basis of slope-area measurement of peak flow; minimum, 198 ft³/s (5.61 m³/s) Jan. 8, 1953, gage height, 0.86 ft (0.262 m), site and datum then in use.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 18,600 ft³/s (527 m³/s) May 27, gage height, 9.16 ft (2.792 m); minimum daily, 330 ft³/s (9.35 m³/s) Jan. 31.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1480	814	775	380	340	500	888	7350	7900	4530	1460	1030
2	1460	798	723	390	345	480	846	7300	7900	4710	1440	1000
3	1450	806	715	410	350	470	854	6840	9420	4310	1390	990
4	1390	1060	768	415	360	480	846	6890	11300	3900	1370	990
5	1330	1350	715	420	370	520	830	8910	11900	3690	1330	990
6	1290	1300	680	430	370	700	870	12800	14200	3600	1280	990
7	1240	1220	659	440	380	915	1020	11300	12300	3600	1250	942
8	1190	1220	600	450	390	942	1160	8970	9780	3480	1220	915
9	1170	1310	650	460	400	915	1300	7400	8340	3270	1190	906
10	1130	1140	700	470	450	888	1460	6720	8000	3130	1170	897
11	1100	942	700	480	490	879	1540	6320	8340	2980	1140	879
12	1080	970	700	480	540	888	1500	6350	9090	2880	1120	862
13	1060	1090	660	480	600	862	1460	6650	9570	2720	1090	846
14	1030	1080	600	470	690	854	1460	7010	8910	2550	1060	822
15	1010	1010	650	480	720	862	1440	7650	7700	2430	1070	798
16	970	1030	630	480	730	897	1460	9090	6400	2310	1060	783
17	951	1080	600	480	640	906	1690	10400	6400	2220	1040	760
18	942	942	620	475	620	933	2150	10100	7100	2150	1020	753
19	924	768	660	470	630	951	2210	9690	7300	2130	1000	745
20	906	730	660	460	610	915	2100	9270	6500	2100	1010	738
21	888	790	660	470	570	906	1990	9270	5700	2130	1060	723
22	897	822	640	430	540	906	1960	10600	5500	2080	1160	708
23	870	897	620	420	520	897	1920	12200	5300	2050	1160	701
24	870	1020	650	440	510	915	1870	14300	5200	1980	1120	694
25	870	1020	620	420	510	1020	1840	16500	5100	1940	1100	687
26	862	960	580	400	530	1030	2100	16800	5000	1880	1100	673
27	846	897	600	390	550	1010	2610	18000	4900	1800	1070	659
28	846	862	550	380	540	951	3550	16600	4790	1710	1040	652
29	862	814	450	380	---	960	4690	12900	4670	1690	1020	639
30	862	783	400	350	---	951	5910	10200	4510	1610	990	632
31	838	---	360	330	---	915	---	8730	---	1550	1000	---
TOTAL	32614	29525	19595	13430	14295	26218	55524	313110	229020	83110	35570	24404
MEAN	1052	984	632	433	511	846	1851	10100	7634	2681	1147	813
MAX	1480	1350	775	480	730	1030	5910	18000	14200	4710	1480	1030
MIN	838	730	360	330	340	470	830	6320	4510	1550	990	632
CFSM	.68	.64	.41	.28	.33	.55	1.20	6.53	4.93	1.73	.74	.53
IN.	.78	.71	.47	.32	.34	.63	1.33	7.52	5.50	2.00	.85	.59
AC-FT	64690	58560	38870	26640	28350	52000	110100	621100	454300	164800	70550	48410

CAL YR 1978 TOTAL 1079420 MEAN 2957 MAX 17400 MIN 360 CFSM 1.91 IN 25.94 AC-FT 2141000
WTR YR 1979 TOTAL 876415 MEAN 2401 MAX 18000 MIN 330 CFSM 1.55 IN 21.06 AC-FT 1738000

12355500 NORTH FORK FLATHEAD RIVER NEAR COLUMBIA FALLS, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1970, 1975 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1975 to November 1978 (discontinued).
WATER TEMPERATURES: October 1975 to current year.
SUSPENDED-SEDIMENT DISCHARGE: October 1975 to November 1978 (discontinued).

INSTRUMENTATION.--Temperature recorder since Oct. 1, 1975.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE.--Maximum daily, 246 micromhos Dec. 31, 1976; minimum daily, 128 micromhos May 28, June 30, July 1, 1976.
WATER TEMPERATURES: Maximum, 19.0°C July 22, 23, 1977; minimum, 0.0°C on many days during winter periods each year.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 931 mg/L May 11, 1976; minimum daily mean, 1 mg/L on many days each year.
SEDIMENT LOADS: Maximum daily, 56,800 tons (51,600 megagrams) May 11, 1976; minimum daily, 1.1 tons (1.0 megagram) Mar. 3, 1978.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum, 18.5°C July 22; minimum, 0.0°C on many days during November to March.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE (DEG C) (00010)	TURBIDITY (NTU) (00076)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)
OCT										
17...	1200	942	1	212	8.0	10.5	7.0	.80	11.1	102

DATE	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY (MG/L AS CACO3) (00410)
OCT										
17...	<1	K2	110	8	31	7.5	1.1	.0	.3	100

DATE	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)
OCT										
17...	10	.4	.1	4.8	124	115	.17	315	.01	.00

DATE	NITROGEN, AMMONIA DISSOLVED (MG/L AS N) (00608)	NITROGEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITROGEN, ORGANIC DISSOLVED (MG/L AS N) (00607)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)	PHOSPHORUS, DISSOLVED (MG/L AS P) (00666)	CARBON, ORGANIC DISSOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUSPENDED TOTAL (MG/L AS C) (00689)
OCT									
17...	.00	.13	.37	.13	.37	.001	.000	.8	.2

DATE	TIME	ALUMINUM, TOTAL RECOVERABLE (UG/L AS AL) (01105)	ALUMINUM, DISSOLVED (UG/L AS AL) (01106)	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DISSOLVED (UG/L AS AS) (01000)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA) (01007)	BARIUM, DISSOLVED (UG/L AS BA) (01005)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD) (01027)	CADMIUM DISSOLVED (UG/L AS CD) (01025)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)
OCT										
17...	1200	0	0	0	0	100	100	0	1	0

12355500 NORTH FORK FLATHEAD RIVER NEAR COLUMBIA FALLS, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COBALT, TOTAL RECOVERABLE (UG/L AS CO) (01037)	COBALT, DISSOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)	COPPER, DISSOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)	IRON, DISSOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOVERABLE (UG/L AS PB) (01051)	LEAD, DISSOLVED (UG/L AS PB) (01049)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)
OCT 17...	0	0	<1	3	2	60	20	3	9	0

DATE	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOVERABLE (UG/L AS HG) (71900)	MERCURY DISSOLVED (UG/L AS HG) (71890)	SELENIUM, TOTAL (UG/L AS SE) (01147)	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	SILVER, TOTAL RECOVERABLE (UG/L AS AG) (01077)	SILVER, DISSOLVED (UG/L AS AG) (01075)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)	ZINC, DISSOLVED (UG/L AS ZN) (01090)
OCT 17...	1	.0	.0	0	0	0	0	20	9

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	196											
2	203											
3	---											
4	206											
5	207											
6	211											
7	210											
8	212											
9	212											
10	213											
11	211											
12	213											
13	214											
14	216											
15	216											
16	216											
17	218											
18	---											
19	220											
20	219											
21	220											
22	219											
23	221											
24	220											
25	221											
26	223											
27	223											
28	223											
29	221											
30	222											
31	223											
MEAN	215											

WTR YR 1979 MEAN 215 MAX 223 MIN 196

12355500 NORTH FORK FLATHEAD RIVER NEAR COLUMBIA FALLS, MT--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	10.0	8.5	9.5	3.0	2.0	2.5	.5	.0	.5	.0	.0	.0
2	9.0	7.5	8.5	3.5	2.0	3.0	.0	.0	.0	.0	.0	.0
3	8.5	7.0	8.0	5.0	3.5	4.0	.0	.0	.0	.0	.0	.0
4	8.0	6.5	7.5	6.0	4.0	5.0	.0	.0	.0	.0	.0	.0
5	8.0	6.5	7.5	4.0	2.5	3.0	.0	.0	.0	.0	.0	.0
6	8.0	6.0	7.5	3.0	2.0	2.5	.0	.0	.0	.0	.0	.0
7	8.0	6.5	7.5	5.5	3.0	4.0	.0	.0	.0	.0	.0	.0
8	8.5	6.5	7.5	5.5	5.0	5.5	.0	.0	.0	.0	.0	.0
9	8.5	7.0	8.0	4.5	.5	2.5	.0	.0	.0	.0	.0	.0
10	6.5	7.5	8.0	.5	.0	.0	.0	.0	.0	.0	.0	.0
11	8.5	8.0	8.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12	7.5	6.0	6.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
13	6.0	4.5	5.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
14	6.0	4.5	5.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
15	6.5	4.5	5.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
16	7.5	5.5	6.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
17	7.5	6.0	7.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
18	7.0	5.5	6.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
19	7.0	5.5	6.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
20	7.0	5.5	6.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
21	7.0	5.5	6.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
22	6.0	4.5	5.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
23	6.5	5.0	5.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
24	6.5	5.0	6.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
25	5.0	4.0	5.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
26	4.5	3.5	4.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
27	5.0	4.0	4.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
28	6.0	4.5	5.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
29	5.5	4.5	5.0	.5	.0	.0	.0	.0	.0	.0	.0	.0
30	5.0	4.0	4.5	.5	.0	.5	.0	.0	.0	.0	.0	.0
31	3.5	3.0	3.5	---	---	---	.0	.0	.0	.0	.0	.0
MONTH	10.0	3.0	6.5	6.0	.0	1.0	.5	.0	.0	.0	.0	.0

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	.0	.0	.0	.0	.0	.0	3.0	1.5	2.5	5.5	4.0	4.5
2	.0	.0	.0	.0	.0	.0	4.0	1.5	2.5	6.0	3.0	4.5
3	.0	.0	.0	.0	.0	.0	3.0	2.0	2.5	6.0	4.5	5.0
4	.0	.0	.0	.0	.0	.0	4.0	1.5	3.0	5.5	4.5	5.0
5	.0	.0	.0	.0	.0	.0	5.5	3.0	4.5	5.0	4.0	4.5
6	.0	.0	.0	.0	.0	.0	6.5	4.0	5.0	4.0	3.5	3.5
7	.0	.0	.0	.0	.0	.0	5.5	4.5	5.0	4.5	3.5	4.0
8	.0	.0	.0	.5	.0	.0	5.5	3.0	4.5	4.5	3.5	4.5
9	.0	.0	.0	1.0	.0	.5	5.5	4.0	4.5	7.0	4.0	5.5
10	.0	.0	.0	1.5	.5	1.0	4.0	2.5	3.5	6.5	5.0	5.5
11	.0	.0	.0	2.5	.5	1.5	4.0	2.0	3.0	7.5	4.5	6.0
12	.0	.0	.0	2.5	1.5	2.0	5.0	3.0	4.0	7.0	5.0	6.0
13	.0	.0	.0	2.0	.5	1.5	4.5	3.5	4.0	8.0	5.5	6.5
14	.0	.0	.0	2.5	1.0	2.0	5.0	3.5	4.5	8.0	5.0	6.5
15	.0	.0	.0	3.0	1.0	2.0	5.5	3.5	4.5	8.0	5.5	7.0
16	.0	.0	.0	3.0	1.0	2.0	5.0	4.0	4.5	7.0	5.5	6.5
17	.0	.0	.0	3.5	1.5	2.5	5.5	4.0	5.0	7.0	4.5	5.5
18	.0	.0	.0	3.0	1.5	2.5	5.0	3.0	4.0	7.0	5.5	6.0
19	.0	.0	.0	3.0	2.0	2.5	4.5	3.0	4.0	7.5	5.0	6.5
20	.0	.0	.0	3.0	1.0	2.0	4.5	3.0	4.0	8.0	5.0	6.5
21	.0	.0	.0	3.5	1.5	2.5	6.0	2.5	4.0	9.0	6.5	7.5
22	.0	.0	.0	3.5	2.0	3.0	5.5	3.5	4.0	9.0	6.5	7.5
23	.0	.0	.0	4.0	2.0	3.5	4.5	3.5	4.0	9.0	6.5	8.0
24	.0	.0	.0	5.0	2.5	4.0	5.0	3.5	4.0	8.5	7.0	8.0
25	.0	.0	.0	4.5	2.5	3.5	6.5	3.0	4.5	8.5	6.0	7.5
26	.0	.0	.0	3.0	1.0	1.5	8.0	5.0	6.5	9.0	6.5	7.5
27	.0	.0	.0	1.5	.0	.5	8.0	4.5	6.5	8.0	7.0	7.5
28	.0	.0	.0	2.0	.0	1.0	7.5	4.5	6.5	7.0	5.5	6.0
29	---	---	---	3.0	1.0	2.0	7.0	4.5	6.0	7.0	5.5	6.0
30	---	---	---	3.0	2.0	2.5	6.5	4.5	5.5	7.5	5.5	6.5
31	---	---	---	3.0	2.0	2.5	---	---	---	8.5	6.0	7.0
MONTH	.0	.0	.0	5.0	.0	1.5	8.0	1.5	4.5	9.0	3.0	6.0

12355500 NORTH FORK FLATHEAD RIVER NEAR COLUMBIA FALLS, MT--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	9.5	7.0	8.0	12.0	10.5	11.0	17.5	14.5	16.0	15.0	12.5	14.0
2	10.5	8.0	9.0	11.0	9.0	10.0	17.5	14.5	16.0	15.5	12.5	14.0
3	10.5	8.0	9.5	13.5	8.5	11.0	17.5	14.5	16.0	15.5	13.5	14.5
4	10.0	8.0	9.0	14.5	11.5	13.0	17.0	14.0	16.0	13.5	12.0	12.5
5	8.5	7.5	8.0	16.0	12.5	14.0	17.5	15.0	16.5	13.5	10.5	12.0
6	7.5	6.0	6.5	16.0	13.5	15.0	17.0	14.0	16.0	14.0	11.0	13.0
7	8.0	6.0	7.0	16.0	13.5	14.5	17.0	13.5	15.5	15.0	12.5	14.0
8	8.5	7.0	8.0	15.0	12.5	14.0	16.5	14.0	15.5	15.0	12.5	14.5
9	10.5	7.5	8.5	15.5	13.0	14.5	17.5	14.0	16.0	14.5	13.0	14.0
10	10.0	8.0	9.0	15.5	13.5	14.5	17.5	14.5	16.0	13.0	11.5	12.5
11	11.5	8.0	9.5	14.5	12.0	12.5	17.5	14.5	16.5	12.5	10.0	11.5
12	12.0	9.0	10.5	13.5	11.0	12.0	17.0	14.5	16.0	13.0	10.5	12.0
13	11.0	8.5	10.0	14.0	11.5	12.5	16.0	14.0	15.5	13.0	10.5	12.0
14	10.0	7.5	8.5	14.5	12.5	13.5	15.0	14.0	14.5	13.0	10.0	12.0
15	9.5	7.5	8.5	15.0	12.5	14.0	15.5	13.0	14.5	13.0	10.5	12.0
16	11.0	7.5	9.0	15.5	12.5	14.0	16.5	13.0	15.0	14.0	11.5	13.0
17	10.5	8.5	9.5	17.0	13.5	15.5	17.0	13.5	15.5	13.5	11.0	12.5
18	11.0	9.0	10.0	18.0	14.5	16.5	17.0	14.0	16.0	13.0	11.0	12.5
19	10.5	9.0	9.5	17.5	15.0	16.5	16.5	14.5	15.5	13.5	11.0	12.5
20	11.0	8.5	9.5	18.0	15.0	16.5	17.0	14.5	15.5	13.5	11.0	12.5
21	11.0	8.0	9.5	18.0	14.5	16.5	16.5	14.5	16.0	13.5	11.5	12.5
22	12.0	8.5	10.0	18.5	16.0	17.5	18.0	15.5	17.0	12.5	10.5	12.0
23	12.5	9.0	11.0	18.0	15.5	16.5	17.5	14.5	16.5	12.0	10.0	11.5
24	13.0	9.5	11.5	17.5	15.0	16.0	16.5	14.5	15.5	12.0	10.0	11.0
25	14.0	10.0	12.0	16.0	14.0	15.0	15.0	13.5	14.0	11.5	9.5	11.0
26	14.5	11.0	12.5	16.0	13.5	15.0	16.0	13.0	15.0	13.0	10.5	12.0
27	14.5	12.0	13.5	17.5	14.0	15.5	16.5	14.0	15.5	13.0	11.0	12.0
28	15.0	11.5	13.5	16.5	14.5	15.0	16.5	14.5	16.0	12.5	10.5	11.5
29	15.0	12.0	13.5	16.5	14.0	15.5	16.5	13.5	15.5	11.0	8.5	10.0
30	14.5	12.0	13.0	16.0	14.5	15.5	17.0	14.5	16.0	11.0	9.0	10.0
31	---	---	---	17.0	13.5	15.5	16.5	13.5	14.5	---	---	---
MONTH	15.0	6.0	10.0	18.5	8.5	14.5	18.0	13.0	15.5	15.5	8.5	12.5
YEAR	18.5	.0	6.0									

12355500 NORTH FORK FLATHEAD RIVER NEAR COLUMBIA FALLS, MT--Continued

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	1	4.0	5	11								
2	2	7.9	3	6.5								
3	3	12	4	8.7								
4	3	11	6	17								
5	2	7.2	5	16								
6	2	7.0	5	18								
7	2	6.7	3	9.9								
8	1	3.2	4	13								
9	1	3.2	4	14								
10	2	6.1	4	12								
11	2	5.9	3	7.6								
12	1	2.9	3	7.9								
13	1	2.9	3	8.8								
14	2	5.6	3	8.7								
15	1	2.7	4	11								
16	1	2.6	3	8.3								
17	1	2.6	4	12								
18	2	5.1	3	7.6								
19	2	5.0	4	8.3								
20	2	4.9	5	9.9								
21	11	26	---	---								
22	2	4.8	---	---								
23	5	12	---	---								
24	2	4.7	---	---								
25	2	4.7	---	---								
26	3	7.0	---	---								
27	1	2.3	---	---								
28	3	6.9	---	---								
29	2	4.7	---	---								
30	2	4.7	---	---								
31	2	4.5	---	---								
TOTAL	---	190.8	---	216.2								

TOTAL LOAD FOR YEAR: 409.0 TONS.

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPER-ATURE (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT						
17...	1200	7.0	942	2	5.1	86

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

PERIPHYTON

DATE	TIME	LENGTH OF EXPO-SURE (DAYS) (00022)	CHLOR-A PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2) (70957)	CHLOR-B PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2) (70958)
OCT				
17...	1200	27	.060	.000

12358500 MIDDLE FORK FLATHEAD RIVER NEAR WEST GLACIER, MT

LOCATION.--Lat 48°29'43", long 114°00'33", in S½SW¼NE¼ sec.34, T.32 N., R.19 W., Flathead County, Hydrologic Unit 17010207, on left bank 0.8 mi (1.3 km) downstream from McDonald Creek, 1.3 mi (2.1 km) west of West Glacier, and 3.8 mi (6.1 km) upstream from mouth.

DRAINAGE AREA.--1,128 mi^2 (2,922 km^2).

PERIOD OF RECORD.--October 1939 to current year. Prior to October 1947, published as "near Belton."

REVISED RECORDS.--WSP 1216: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 3,128.72 ft (953.634 m) National Geodetic Vertical Datum of 1929. Prior to Nov. 22, 1950, nonrecording gage at present site and datum.

REMARKS.--Records good except those for winter period, which are poor. Several observations of water temperature were made during the year and are available in the files of the Helena district office.

AVERAGE DISCHARGE.--40 years, 2,948 ft^3/s (83.49 m^3/s), 35.49 in/yr (901 mm/yr), 2,136,000 acre-ft/yr (2.63 km^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, about 140,000 ft^3/s (3,960 m^3/s) June 9, 1964, gage height, 36.46 ft (11.113 m), from floodmarks, from rating curve extended above 31,000 ft^3/s (878 m^3/s), on basis of contracted opening measurement at gage height, 19.42 ft (5.919 m) and flood volume-hydrographic comparison; minimum, less than 173 ft^3/s (4.90 m^3/s) Nov. 27, 1952 (stage below intake pipe).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 21,600 ft^3/s (612 m^3/s) May 27, gage height, 8.96 ft (2.731 m); minimum, 249 ft^3/s (7.05 m^3/s) Feb. 13, gage height, 1.20 ft (0.366 m), result of snow slide upstream.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1280	664	637	335	315	460	994	6970	9090	5420	1530	1070
2	1230	638	569	340	315	430	950	6590	9720	4970	1480	980
3	1190	642	557	350	325	418	929	6290	12200	4340	1430	923
4	1130	864	601	350	330	420	907	6770	14400	4030	1380	912
5	1100	1000	582	360	335	436	896	9250	15100	4410	1330	903
6	1060	981	528	370	340	503	939	11400	16200	4520	1300	848
7	1030	961	509	400	345	645	1150	10500	12700	4580	1250	815
8	1010	968	487	410	350	865	1400	8890	10100	4290	1210	799
9	983	1040	517	410	356	902	1590	7450	8820	3900	1170	825
10	950	950	552	420	413	901	1840	6610	9160	3670	1140	802
11	924	783	576	440	453	886	1830	6180	10300	3490	1110	767
12	917	777	571	430	437	913	1750	6330	12100	3190	1080	744
13	892	848	482	430	544	915	1690	6860	12900	2900	1060	722
14	874	862	464	420	624	892	1640	7920	11500	2720	1040	700
15	847	817	521	440	649	911	1580	9020	9510	2590	1010	690
16	833	808	490	440	671	962	1560	11500	8340	2500	989	678
17	810	856	444	440	576	1010	1700	13000	8070	2440	972	673
18	792	802	481	430	569	1030	2210	11700	9240	2420	959	667
19	778	691	506	420	567	1030	2370	11200	9520	2420	946	659
20	760	714	504	425	554	1020	2300	11200	8420	2390	982	648
21	773	734	498	435	523	1020	2210	11400	7470	2350	996	641
22	787	670	495	385	487	1010	2170	13600	7090	2270	1010	630
23	760	765	489	375	468	1010	2120	15300	6840	2190	1020	618
24	743	788	514	395	456	1030	2030	18400	6740	2080	984	603
25	748	768	475	380	456	1130	1960	19100	6590	1960	964	593
26	731	746	450	355	482	1140	2020	19500	6460	1850	936	580
27	709	707	458	355	497	1150	2380	20800	6320	1770	900	566
28	689	682	431	350	492	1100	3260	18500	6140	1710	898	546
29	705	659	382	345	---	1070	4650	14100	5890	1700	862	532
30	722	646	352	310	---	1050	6040	11200	5660	1670	844	514
31	690	---	340	300	---	1030	---	9600	---	1590	911	---
TOTAL	27447	23831	15462	12045	12929	27289	59065	347130	282590	92330	33695	21648
MEAN	885	794	499	389	462	880	1969	11200	9420	2978	1087	722
MAX	1280	1040	637	440	671	1150	6040	20800	16200	5420	1530	1070
MIN	689	638	340	300	315	418	896	6180	5660	1590	844	514
CFSM	.79	.70	.44	.35	.41	.78	1.75	9.93	8.35	2.64	.96	.64
IN.	.91	.79	.51	.40	.43	.90	1.95	11.45	9.32	3.04	1.11	.71
AC-FT	54440	47270	30670	23890	25640	54130	117200	688500	560500	183100	66830	42940

CAL YR 1978 TOTAL 1069830 MEAN 2931 MAX 16800 MIN 340 CFSM 2.60 IN 35.28 AC-FT 2122000
WTR YR 1979 TOTAL 955461 MEAN 2618 MAX 20800 MIN 300 CFSM 2.32 IN 31.51 AC-FT 1895000

12359800 SOUTH FORK FLATHEAD RIVER ABOVE TWIN CREEK, NEAR HUNGRY HORSE, MT

LOCATION.--Lat 47°58'45", long 113°33'36", in NE¼NW¼NE¼ sec.36, T.26 N., R.16 W., Flathead County, Hydrologic Unit 17010209, Flathead National Forest, on left bank 0.1 mi (0.2 km) downstream from Tin Creek, 0.4 mi (0.6 km) upstream from Twin Creek, 36.3 mi (58.4 km) southeast of Hungry Horse, and at mile 46.7 (75.1 km).

DRAINAGE AREA.--1,160 mi^2 (3,004 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1964 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 3,575 ft (1,090 m), from river-profile map.

REMARKS.--Water-discharge records good except those for winter period, which are poor.

AVERAGE DISCHARGE.--15 years, 2,333 ft^3/s (66.07 m^3/s), 27.32 in/yr (694 mm/yr), 1,690,000 acre-ft/yr. (2.08 km^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 30,200 ft^3/s (855 m^3/s) June 16, 1974, gage height, 15.20 ft (4.633 m); minimum, 156 ft^3/s (4.42 m^3/s) Dec. 8, 1971 and Dec. 21, 1976 (result of freezeups); minimum gage height, 4.30 ft (1.311 m) Dec. 21, 1976.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 8, 1964, reached a stage of 20.87 ft (6.361 m), from high-water profile; discharge, 50,900 ft^3/s (1,440 m^3/s), by slope-area measurement of peak flow.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 20,300 ft^3/s (575 m^3/s) May 27, gage height, 12.97 ft (3.953 m); minimum daily, 190 ft^3/s (5.38 m^3/s) Jan. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	542	330	310	190	230	239	536	4600	7450	3930	793	596
2	525	318	280	200	235	239	502	4200	8100	3510	760	609
3	508	326	340	210	245	229	486	4180	10600	3020	734	571
4	491	429	350	200	255	222	486	4730	13200	2790	706	550
5	481	465	330	200	265	247	481	6280	13600	2830	683	523
6	470	429	320	205	270	281	502	7450	13100	2770	655	494
7	459	409	310	210	280	357	705	6450	10100	2710	631	470
8	444	486	290	220	290	475	815	5400	7980	2530	609	449
9	434	542	300	230	293	519	936	4560	6840	2340	589	443
10	424	409	310	245	293	497	1030	4030	7320	2160	570	443
11	419	326	320	250	305	497	960	3770	8650	2040	553	431
12	414	409	320	260	309	536	913	3930	11000	1910	543	413
13	404	465	300	250	339	536	882	4320	12100	1750	530	399
14	394	419	280	240	409	530	852	5330	11000	1620	525	391
15	390	348	300	250	429	559	830	6610	8530	1520	517	380
16	380	394	290	255	344	632	830	9930	7290	1440	513	369
17	375	470	280	270	335	664	1000	10700	6890	1380	498	357
18	371	394	270	255	335	645	1410	9670	7420	1350	488	347
19	366	370	290	250	322	620	1450	9200	7150	1310	492	345
20	357	360	295	265	305	583	1370	9290	6660	1290	519	338
21	375	350	290	270	289	577	1300	10100	6030	1270	526	332
22	371	390	290	265	277	577	1340	12300	5770	1240	611	324
23	357	430	285	260	277	565	1330	14100	5680	1200	589	323
24	362	460	280	260	258	577	1260	18800	5470	1130	560	318
25	366	450	275	250	281	677	1210	18100	5270	1070	554	313
26	352	430	260	255	281	684	1270	17800	5310	1020	528	308
27	344	415	260	260	269	664	1580	19400	5130	975	525	303
28	339	400	255	250	265	632	2280	16600	4870	937	516	299
29	362	380	235	240	---	620	3220	12100	4460	920	488	295
30	357	370	220	225	---	583	4030	9260	4160	875	465	291
31	344	---	210	220	---	559	---	7810	---	831	496	---
TOTAL	12577	12173	8945	7410	8285	15822	35794	281200	237130	55668	17766	12024
MEAN	406	406	289	239	296	510	1193	9071	7904	1796	573	401
MAX	542	542	350	270	429	684	4030	19400	13600	3930	793	609
MIN	339	318	210	190	230	222	481	3770	4160	831	465	291
CFSM	.35	.35	.25	.21	.26	.44	1.03	7.82	6.81	1.55	.49	.35
IN.	.40	.39	.29	.24	.27	.51	1.15	9.02	7.60	1.79	.57	.39
AC-FT	24950	24150	17740	14700	16430	31380	71000	557800	470300	110400	35240	23850

CAL YR 1978 TOTAL 842709 MEAN 2446 MAX 17500 MIN 210 CFSM 2.11 IN 28.63 AC-FT 1771000
WTR YR 1979 TOTAL 704794 MEAN 1931 MAX 19400 MIN 190 CFSM 1.67 IN 22.60 AC-FT 1398000

12359800 SOUTH FORK FLATHEAD RIVER ABOVE TWIN CREEK, NEAR HUNGRY HORSE, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: May 1965 to current year.

INSTRUMENTATION.--Temperature recorder since May 1965.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum, 20.0°C July 23, 1977; minimum, 0.0°C on many days during winter periods most years.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum, 19.0°C July 31, Aug. 1-3, 5, 9, 10; minimum, 0.0°C on many days during December to February.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	10.5	9.0	9.5	3.5	2.5	3.0	---	---	---	.0	.0	.0
2	10.0	8.0	9.0	3.5	2.0	3.0	.0	.0	.0	.0	.0	.0
3	9.0	7.0	8.5	4.0	3.5	3.5	.0	.0	.0	.0	.0	.0
4	9.0	7.5	8.5	5.0	4.0	4.5	.0	.0	.0	.0	.0	.0
5	8.5	6.5	7.5	4.0	3.0	3.5	.0	.0	.0	.0	.0	.0
6	8.5	6.5	7.5	3.0	2.5	3.0	.0	.0	.0	.0	.0	.0
7	8.0	6.5	7.5	5.0	3.0	4.0	.0	.0	.0	.0	.0	.0
8	8.5	6.5	7.5	5.0	5.0	5.0	.0	.0	.0	.0	.0	.0
9	8.5	6.5	8.0	4.5	2.0	3.5	.0	.0	.0	.0	.0	.0
10	8.5	7.5	6.0	---	1.0	---	.0	.0	.0	.0	.0	.0
11	8.5	8.0	8.5	---	---	---	.0	.0	.0	.0	.0	.0
12	8.5	7.0	7.5	---	---	---	.0	.0	.0	.0	.0	.0
13	7.0	5.5	6.5	---	---	---	.0	.0	.0	.0	.0	.0
14	6.5	4.5	6.0	---	---	---	.0	.0	.0	.0	.0	.0
15	7.0	5.0	6.0	---	---	---	.0	.0	.0	.0	.0	.0
16	7.5	5.5	6.5	---	---	---	.0	.0	.0	.0	.0	.0
17	7.5	6.0	7.0	---	---	---	.0	.0	.0	.0	.0	.0
18	7.5	6.0	7.0	---	---	---	.0	.0	.0	.0	.0	.0
19	7.5	5.5	6.5	---	---	---	.0	.0	.0	.0	.0	.0
20	7.0	5.5	6.5	---	---	---	.0	.0	.0	.0	.0	.0
21	7.0	6.5	6.5	---	---	---	.0	.0	.0	.0	.0	.0
22	7.0	6.0	6.5	---	---	---	.0	.0	.0	.0	.0	.0
23	6.5	5.5	6.0	---	---	---	.0	.0	.0	.0	.0	.0
24	6.5	6.0	6.5	---	---	---	.0	.0	.0	.0	.0	.0
25	6.0	5.0	5.5	---	---	---	.0	.0	.0	.0	.0	.0
26	5.0	4.0	4.5	---	---	---	.0	.0	.0	.0	.0	.0
27	5.5	4.0	4.5	---	---	---	.0	.0	.0	.0	.0	.0
28	6.0	5.0	5.5	---	---	---	.0	.0	.0	.0	.0	.0
29	6.0	5.5	5.5	---	---	---	.0	.0	.0	.0	.0	.0
30	5.5	4.5	5.0	---	---	---	.0	.0	.0	.0	.0	.0
31	4.5	3.5	4.0	---	---	---	.0	.0	.0	.0	.0	.0
MONTH	10.5	3.5	7.0	5.0	1.0	3.5	.0	.0	.0	.0	.0	.0

12359800 SOUTH FORK FLATHEAD RIVER ABOVE TWIN CREEK, NEAR HUNGRY HORSE, MT--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	.0	.0	.0							4.5	---	---
2	.0	.0	.0							6.0	3.5	4.5
3	.0	.0	.0							6.0	4.0	5.5
4	.0	.0	.0							6.0	4.5	5.0
5	.0	.0	.0							5.0	4.0	4.5
6	.0	.0	.0							4.5	3.5	4.0
7	.0	.0	.0							6.0	4.0	4.5
8	.0	.0	.0							5.5	4.0	4.5
9	---	---	---							5.5	4.0	5.0
10	---	---	---							5.5	4.0	5.0
11	---	---	---							6.5	4.5	5.5
12	---	---	---							6.5	5.0	5.5
13	---	---	---							6.5	5.0	6.0
14	---	---	---							7.5	4.5	6.0
15	---	---	---							7.5	4.5	6.0
16	---	---	---							6.5	5.0	5.5
17	---	---	---							6.5	3.5	5.0
18	---	---	---							6.5	4.5	5.5
19	---	---	---							7.5	4.5	6.0
20	---	---	---							7.5	4.5	6.0
21	---	---	---							8.0	5.0	6.5
22	---	---	---							8.0	5.0	6.5
23	---	---	---							8.0	5.0	6.5
24	---	---	---							7.5	5.0	6.0
25	---	---	---							7.5	4.5	6.0
26	---	---	---							8.0	5.0	6.5
27	---	---	---							7.5	5.5	6.5
28	---	---	---							7.0	4.5	5.5
29	---	---	---							6.0	4.0	5.0
30	---	---	---							6.5	4.5	5.5
31	---	---	---							7.5	5.0	6.5
MONTH	.0	.0	.0							8.0	3.5	5.5

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	8.0	5.5	6.5	10.5	9.5	10.0	19.0	14.5	16.5	16.0	13.0	14.5
2	8.5	6.0	7.5	11.0	8.0	9.5	19.0	14.5	16.5	17.0	13.0	14.5
3	9.0	6.0	7.5	12.0	9.0	10.5	19.0	14.5	16.5	17.0	13.0	14.5
4	8.5	6.0	7.0	14.0	11.5	12.5	17.5	14.0	16.0	15.0	13.0	14.0
5	7.5	6.0	6.5	14.5	11.0	13.0	19.0	14.0	16.5	15.0	11.0	13.0
6	6.5	5.0	6.0	14.5	12.5	13.0	18.5	14.0	16.0	15.0	11.0	13.0
7	7.0	5.0	6.0	14.5	11.5	13.0	18.5	13.5	16.0	16.5	11.5	14.0
8	7.5	5.0	6.5	14.0	12.5	13.0	18.5	14.0	16.0	17.0	12.5	14.5
9	9.5	6.0	7.5	14.0	11.5	13.0	19.0	14.5	16.5	16.5	13.5	15.0
10	9.0	7.0	8.0	14.5	13.0	14.0	19.0	14.0	16.5	14.5	12.5	13.5
11	10.0	7.0	8.5	14.0	11.5	12.5	18.0	14.0	16.0	13.5	10.5	12.0
12	10.5	7.0	8.5	12.0	10.0	11.0	18.0	14.0	16.0	13.5	10.0	12.0
13	9.5	7.0	8.5	13.0	10.5	11.5	16.5	14.0	15.5	14.0	9.5	12.0
14	9.0	6.5	7.5	14.0	11.5	12.5	16.5	14.0	15.0	14.0	9.5	12.0
15	8.5	6.0	7.5	13.5	11.0	12.5	16.5	13.5	15.0	14.5	10.0	12.0
16	8.5	6.5	7.5	15.5	11.5	13.0	18.0	13.0	15.5	14.5	10.5	13.0
17	8.5	7.0	8.0	17.0	13.0	14.5	17.5	13.5	15.5	14.5	10.5	12.5
18	8.5	7.0	7.5	17.5	14.0	15.5	16.0	14.0	15.0	14.5	10.5	12.5
19	8.5	7.0	7.5	18.0	15.0	16.0	16.5	14.0	15.5	14.5	10.5	12.5
20	9.0	6.5	7.5	17.5	14.5	16.0	17.0	14.5	15.5	14.5	11.0	13.0
21	10.0	7.0	8.5	18.0	14.0	15.5	17.0	14.0	15.5	14.5	11.0	13.0
22	10.5	8.0	9.5	18.5	16.0	17.0	18.5	14.5	16.5	13.5	10.0	12.0
23	11.0	8.0	9.5	18.0	14.5	16.0	17.5	14.0	15.5	13.0	9.5	11.5
24	11.0	8.0	10.0	17.5	14.5	16.0	16.0	14.5	15.0	13.0	9.0	11.0
25	12.0	9.0	10.5	17.5	15.0	16.0	16.5	13.5	15.0	12.0	9.0	11.0
26	12.5	9.5	11.0	18.0	14.5	16.0	17.5	13.5	15.5	13.0	11.0	12.0
27	12.5	10.5	11.5	18.5	14.0	16.0	17.0	13.5	15.5	14.0	10.5	12.5
28	13.0	10.0	11.5	16.0	14.5	15.0	17.5	14.0	15.5	13.0	11.0	12.0
29	13.0	10.5	11.5	17.0	13.0	15.0	17.5	13.0	15.5	12.5	9.5	11.0
30	12.5	10.5	11.5	18.5	14.5	16.0	17.5	13.5	15.5	12.0	9.0	10.5
31	---	---	---	19.0	14.0	16.5	16.5	14.5	15.0	---	---	---
MONTH	13.0	5.0	8.5	19.0	8.0	14.0	19.0	13.0	15.5	17.0	9.0	12.5
YEAR	19.0	.0	7.5									

12362000 HUNGRY HORSE RESERVOIR NEAR HUNGRY HORSE, MT

LOCATION.--Lat 48°20'28", long 114°00'48", in NE¼NE¼NW¼ sec.27, T.30 N., R.19 W., Flathead County, Hydrologic Unit 17010209, in block 14 of Hungry Horse Dam on South Fork Flathead River, 3.8 mi (6.1 km) southeast of Hungry Horse, and at mile 5.2 (8.4 km).

DRAINAGE AREA.--1,654 mi² (4,284 km²).

PERIOD OF RECORD.--September 1951 to current year.

GAGE.--Water-stage recorder equipped with remote indicator in power house. Datum of gage is at National Geodetic Vertical Datum of 1929 (levels by Water and Power Resources Service, formerly Bureau of Reclamation). During construction and prior to May 1, 1953, various types of nonrecording gages were used.

REMARKS.--Reservoir and flow completely controlled by concrete arch-gravity dam; construction began in 1948; completed in 1952. Storage began Sept. 21, 1951. Usable capacity, 3,451,000 acre-ft (4.26 km³), top of 1.0 ft (0.30 m) flashboards; 3,428,000 acre-ft (4.23 km³) between elevations 3,196 ft (974.1 m), lowest outlet, and 3,560 ft (1,085.1 m), controlled spillway elevation. Dead storage, 40,140 acre-ft (49.5 hm³) below elevation 3,196 ft (974.1 m). Minimum operating level, 445,900 acre-ft (550 hm³), elevation, 3,336 ft (1,016.8 m) for on-site power generation. Water is used for power production, flood control, irrigation and recreation. Controlled spillway is an adjustable ring gate with 1.0 ft (0.3 m) flashboards. Figures given herein represent usable contents.

COOPERATION.--Capacity table and daily elevations furnished by Water and Power Resources Service (formerly Bureau of Reclamation).

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 3,461,000 acre-ft (4.27 km³) July 3, 4, 1955, Aug. 6, 1956; maximum elevation observed, 3,561.40 ft (1,085.515 m) July 3, 4, 1955; minimum contents observed since normal low operating level reached in May 1952, 607,700 acre-ft (749 hm³) Jan. 13, 1953 (elevation, 3,362.50 ft or 1,024.890 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents observed, 3,449,000 acre-ft (4.25 km³) Oct. 16, (elevation, 3,560.86 ft or 1,085.350 m); minimum observed, 2,184,000 acre-ft (2.69 km³) Mar. 30 (elevation, 3,499.91 ft or 1,066.773 m).

Capacity table (elevation, in feet, and contents, in acre-ft)

3,480	1,859,000	3,540	2,974,000
3,500	2,186,000	3,565	3,548,000
3,520	2,560,000		

ELEVATION, IN FEET NGVD, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
INSTANTANEOUS OBSERVATIONS AT 2359

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3560.56	3555.18	3536.74	3514.80	3501.69	3502.90	3500.15	3506.49	3538.32	3560.30	3555.36	3542.24
2	3560.61	3554.62	3535.92	3514.09	3501.55	3502.93	3500.24	3506.84	3539.45	3560.26	3554.95	3542.28
3	3560.65	3554.16	3535.13	3513.13	3501.56	3502.97	3500.37	3507.70	3540.90	3560.16	3554.53	3542.34
4	3560.52	3553.62	3534.33	3512.45	3501.56	3503.03	3500.51	3508.18	3542.60	3560.21	3554.14	3541.89
5	3560.47	3553.12	3533.46	3511.46	3501.47	3502.82	3500.59	3509.85	3544.39	3560.14	3554.19	3541.38
6	3560.52	3552.51	3532.64	3510.65	3501.50	3502.86	3500.71	3511.77	3546.00	3559.96	3553.77	3540.84
7	3560.56	3551.84	3531.78	3510.28	3501.42	3502.95	3500.97	3512.71	3547.18	3559.76	3553.31	3540.30
8	3560.61	3551.07	3530.95	3509.65	3501.43	3503.12	3501.23	3513.20	3548.16	3560.03	3552.86	3540.29
9	3560.65	3550.37	3530.11	3509.03	3501.48	3503.27	3501.53	3513.62	3548.98	3559.87	3552.39	3540.34
10	3560.68	3549.61	3529.30	3508.34	3501.57	3503.40	3501.83	3513.80	3549.92	3559.61	3551.95	3539.85
11	3560.72	3548.83	3528.48	3508.16	3501.64	3503.54	3502.10	3513.86	3551.05	3559.49	3551.50	3539.30
12	3560.56	3548.12	3527.64	3508.18	3501.78	3503.26	3502.08	3513.90	3552.02	3559.27	3551.54	3538.75
13	3560.75	3547.37	3526.74	3507.91	3502.01	3502.95	3501.76	3514.57	3553.42	3558.98	3551.08	3538.22
14	3560.78	3546.63	3526.06	3507.92	3502.06	3502.64	3501.94	3514.95	3554.38	3558.64	3550.62	3537.70
15	3560.82	3545.87	3525.20	3507.74	3502.15	3502.33	3502.14	3515.55	3554.89	3558.47	3550.15	3537.71
16	3560.86	3545.65	3524.32	3507.74	3502.22	3502.04	3501.84	3516.66	3555.76	3558.37	3549.67	3537.73
17	3560.83	3545.69	3523.83	3507.75	3502.30	3502.16	3501.68	3517.83	3556.59	3558.28	3549.19	3537.40
18	3560.79	3545.35	3523.25	3507.48	3502.37	3502.28	3501.58	3518.75	3557.11	3558.17	3548.70	3537.07
19	3560.75	3544.79	3522.39	3507.37	3502.46	3502.02	3501.42	3519.64	3557.54	3558.06	3548.27	3536.99
20	3560.72	3544.07	3521.51	3507.38	3502.51	3501.72	3501.25	3520.97	3557.81	3557.79	3547.73	3537.01
21	3560.75	3543.29	3521.03	3507.47	3502.55	3501.40	3501.53	3522.00	3557.78	3557.47	3547.26	3537.03
22	3560.79	3542.50	3520.63	3507.21	3502.63	3501.10	3501.85	3523.36	3557.71	3557.56	3546.77	3537.05
23	3560.36	3541.97	3520.70	3506.72	3502.66	3500.80	3501.98	3524.95	3557.63	3557.47	3546.23	3537.07
24	3559.78	3541.95	3520.74	3506.44	3502.68	3500.90	3502.14	3527.18	3557.88	3557.37	3545.77	3537.08
25	3559.27	3541.47	3520.78	3505.76	3502.70	3501.06	3502.41	3529.28	3558.17	3557.23	3545.25	3537.10
26	3558.90	3540.67	3520.32	3504.81	3502.73	3500.89	3502.76	3531.33	3558.79	3557.10	3544.82	3537.13
27	3557.85	3539.86	3519.72	3503.77	3502.81	3500.69	3503.20	3533.89	3559.31	3556.84	3544.31	3537.15
28	3557.35	3539.12	3518.77	3503.54	3502.86	3500.43	3503.83	3535.74	3559.39	3556.51	3543.79	3537.16
29	3557.11	3538.32	3517.78	3502.44	---	3500.16	3504.63	3536.65	3559.45	3556.59	3543.27	3537.17
30	3556.41	3537.55	3516.76	3501.77	---	3499.91	3505.57	3537.33	3559.85	3556.21	3542.72	3537.18
31	3555.89	---	3515.79	3501.68	---	3500.03	---	3537.82	---	3555.78	3542.22	---
MAX	3560.86	3555.18	3536.74	3514.80	3502.86	3503.54	3505.57	3537.82	3559.85	3560.30	3555.36	3542.34
MIN	3555.89	3537.55	3515.79	3501.68	3501.42	3499.91	3500.15	3506.49	3538.32	3555.78	3542.22	3536.99
(‡)	3332	2922	2478	2215	2236	2187	2285	2927	3425	3330	3022	2914
(‡‡)	-108,000	-410,000	-444,000	-263,000	+21,000	-49,000	+98,000	+642,000	+498,000	-95,000	-308,000	-108,000

CAL YR 1978 . . . . ‡‡ +504,000
WAT YR 1979 . . . . ‡‡ -526,000

‡ Contents, in thousands of acre-feet, at end of month.
‡‡ Change in contents, in acre-feet.

12362500 SOUTH FORK FLATHEAD RIVER NEAR COLUMBIA FALLS, MT

LOCATION.--Lat 48°21'24", long 114°02'12", in SW¼SE¼SW¼ sec.16, T.30 N., R.19 W., Flathead County, Hydrologic Unit 17010209, on right bank 1.7 mi (2.7 km) downstream from Hungry Horse Dam, 3.5 mi (5.6 km) upstream from mouth, and 6.8 mi (10.9 km) east of Columbia Falls and at mile 152.2 (244.9 km).

DRAINAGE AREA.--1,663 mi² (4,307 km²).

PERIOD OF RECORD.--September 1910 to January 1911 (discharge measurements only), February 1911 to September 1913 (no winter records), October 1913 to August 1916 (scattered daily discharge only), water years 1917-22 (annual maximum), April 1923 to November 1924 (no winter records), July to October 1925, May to November 1927, May 1928 to current year. Monthly discharge only for some periods, published in WSP 1316.

REVISED RECORDS.--WSP 1216: Drainage area. WSP 1316: 1923-24(M), 1926-27(M), 1932(M), 1935-36(M). WSP 1636: 1958 (adjusted runoff).

GAGE.--Water-stage recorder. Datum of gage is 3,040 ft (926.6 m) National Geodetic Vertical Datum of 1929 (levels by the U.S. Water and Power Resources Service). September 1910 to September 1916, nonrecording gage, and Apr. 23, 1923, to Sept. 30, 1928, water-stage recorder at site 3 mi (5 km) downstream at diffferent datum. Oct. 1, 1928, to Sept. 30, 1952, water-stage recorder at site 1.5 mi (2.4 km) downstream at different datum.

REMARKS.--Records excellent. Flow regulated by Hungry Horse Reservoir since Sept. 21, 1951 (see preceding page). Several observations of water temperature were made during the year and are available in files of Helena district office.

AVERAGE DISCHARGE.--51 years (water years, 1929-79), 3,571 ft³/s (101.1 m³/s), 29.16 in/yr (741 mm/yr), 2,587,000 acre-ft/yr (3.19 km³/yr), adjusted for change in contents in Hungry Horse Reservoir since Oct. 1, 1951.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge observed, 46,200 ft³/s (1,310 m³/s) June 19, 1916, gage height, 16.6 ft (5.06 m), site and datum then in use, from rating curve extended above 20,000 ft³/s (566 m³/s); minimum observed, 7.3 ft³/s (0.21 m³/s) Sept. 24, 1951, gage height, 0.52 ft (0.158 m), dam closure, site and datum then in use; minimum daily, 7.3 ft³/s (0.21 m³/s) Sept. 24, 1951.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 10,200 ft³/s (289 m³/s) Dec. 30, Jan. 30,age height, 10.39 ft (3.167 m); minimum daily, 135 ft³/s (3.82 m³/s) Feb. 20.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	182	9020	9360	10100	445	138	152	1300	5890	670	6110	400
2	183	6780	9380	7390	1840	140	142	5380	200	5550	5910	150
3	185	7000	9410	9690	401	141	141	157	229	5710	6100	150
4	2510	7650	9420	7110	463	143	151	6420	238	3090	5410	6400
5	1440	6590	9440	9820	1590	3010	157	299	260	5060	169	6560
6	157	7610	9460	8120	425	534	155	238	266	5680	6010	6540
7	155	9100	9480	3920	1500	859	156	4420	219	5680	6090	6670
8	157	9130	9450	6150	145	142	154	5060	201	211	6100	551
9	158	9160	9440	6520	143	142	150	4840	195	5690	6120	146
10	158	9150	9460	6680	139	143	145	5990	208	6030	6150	6190
11	162	9150	9490	2310	141	138	159	6920	392	4490	5740	6590
12	2730	9150	9460	334	146	4100	2440	7260	3830	5190	252	6610
13	2190	9150	9480	3470	145	4410	5900	1600	245	6050	6020	6680
14	149	9160	7990	398	138	4090	151	6310	3810	6050	6110	6200
15	155	9220	9570	2200	137	4050	154	6300	5430	4200	6260	164
16	157	3390	9580	308	137	3930	4780	6250	218	3330	6160	153
17	1040	378	5190	396	138	150	4830	5670	212	3310	6510	4260
18	1050	5280	6660	3130	139	148	4820	6400	4820	3300	6250	4270
19	1050	7120	9560	1350	142	4250	4820	6060	5730	3290	5780	1280
20	1070	8340	9560	427	135	4110	4840	1760	6400	5050	6560	147
21	151	9310	5300	429	137	4140	181	5700	9110	5510	6560	153
22	157	9310	5110	3300	136	4140	148	5670	9100	232	6520	160
23	6150	6940	159	4950	304	4110	1620	5870	9110	2980	6570	161
24	6910	843	158	3490	417	146	1390	5010	4670	2980	6190	159
25	7180	5900	157	6480	418	152	149	4950	3560	3600	6570	222
26	9000	9310	5290	9060	276	3760	150	4800	213	2990	5820	151
27	9010	9350	6630	10000	139	3830	154	261	808	4440	6560	158
28	6630	9340	9770	2760	139	3660	150	3660	6250	5320	6550	159
29	3240	9330	10000	10000	---	4120	155	6330	6010	172	6520	157
30	9060	9320	10200	6340	---	3680	164	5950	187	5950	6590	153
31	6850	---	10100	1170	---	153	---	5920	---	6060	7470	---
TOTAL	79376	230461	243714	147862	10395	66679	38658	143755	88011	127865	181751	71758
MEAN	2561	7683	7862	4770	371	2151	1289	4637	2934	4125	5863	2392
MAX	9060	9350	10200	10100	1840	4410	5900	7260	9110	6060	7470	6680
MIN	149	378	157	334	135	138	141	157	187	172	169	146
CFSM	1.54	4.62	4.73	2.87	.22	1.29	.78	2.79	1.76	2.48	3.53	1.44
IN.	1.78	5.16	5.45	3.31	.23	1.49	.86	3.22	1.97	2.86	4.07	1.61
AC-FT	157400	457200	483400	293300	20620	132300	76680	285100	174600	253600	360500	142300
MEAN *	803	793	641	493	749	1,355	2,936	15,080	11,300	2,579	854	576
CFSM *	.48	.48	.39	.30	.45	.81	1.77	9.07	6.80	1.55	.51	.35
IN *	.56	.53	.44	.34	.47	.94	1.97	10.45	7.58	1.79	.59	.39
AC-FT*	49,400	47,200	39,400	30,300	41,620	83,300	174,680	927,100	672,600	158,600	52,500	34,300

OBSERVED

CAL YR 1978	TOTAL	1,132,306	MEAN	3,102	MAX	10,200	MIN	149	AC-FT	2,246,000
WTR YR 1979	TOTAL	1,430,325	MEAN	3,919	MAX	10,200	MIN	135	AC-FT	2,837,000

ADJUSTED

CAL YR 1978	TOTAL	1,386,323	MEAN	3,798	CFSM	2.28	IN	31.00	AC-FT	2,750,000
WTR YR 1979	TOTAL	1,165,112	MEAN	3,192	CFSM	1.92	IN	26.06	AC-FT	2,311,000

*Adjusted for change in contents in Hungry Horse Reservoir.

12362500 SOUTH FORK FLATHEAD RIVER NEAR COLUMBIA FALLS, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: October 1964 to September 1968, March to September 1979.

INSTRUMENTATION.--Temperature recorder since March 30, 1979.

REMARKS.--Prior to March 1979 thermograph records furnished by Montana Department of Fish, Wildlife, and Parks.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum (1964-67, 79), 19.0°C Aug. 9-11, 1966; minimum (1964-68), 2.0°C on many days during winter periods most years.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum, 7.0°C June 26, 27, July 22, Aug. 5; minimum, 3.0°C May 17, 20.

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1				---	---	---	5.0	4.0	4.5	5.0	3.5	4.5
2				---	---	---	5.0	4.0	4.5	3.5	3.5	3.5
3				---	---	---	4.5	4.0	4.5	5.0	3.5	4.5
4				---	---	---	4.5	4.0	4.5	4.5	3.5	4.0
5				---	---	---	5.5	4.0	4.5	4.5	3.5	4.0
6				---	---	---	5.5	4.0	4.5	4.0	4.0	4.0
7				---	---	---	5.0	4.0	4.5	4.5	3.5	4.0
8				---	---	---	5.5	4.0	4.5	4.0	3.5	3.5
9				---	---	---	5.0	4.5	4.5	4.0	3.5	3.5
10				---	---	---	4.5	4.0	4.5	4.0	3.5	4.0
11				---	---	---	5.0	4.0	4.5	4.0	3.5	3.5
12				---	---	---	4.5	3.5	4.0	3.5	3.5	3.5
13				---	---	---	3.5	3.5	3.5	5.5	3.5	4.5
14				---	---	---	5.0	3.5	4.5	3.5	3.5	3.5
15				---	---	---	5.0	4.0	4.5	3.5	3.5	3.5
16				---	---	---	4.5	3.5	3.5	3.5	3.5	3.5
17				---	---	---	4.0	3.5	3.5	3.5	3.0	3.5
18				---	---	---	4.0	3.5	3.5	3.5	3.5	3.5
19				---	---	---	4.0	3.5	3.5	3.5	3.5	3.5
20				---	---	---	4.0	3.5	3.5	4.0	3.0	3.5
21				---	---	---	5.5	3.5	4.5	4.0	3.5	3.5
22				---	---	---	5.0	4.0	4.5	3.5	3.5	3.5
23				---	---	---	4.5	3.5	4.0	3.5	3.5	3.5
24				---	---	---	4.5	3.5	4.0	3.5	3.5	3.5
25				---	---	---	5.5	4.0	4.5	4.0	3.5	3.5
26				---	---	---	5.5	4.5	5.0	4.0	3.5	3.5
27				---	---	---	5.5	4.0	5.0	6.0	3.5	4.5
28				---	---	---	5.5	4.0	5.0	4.5	3.5	3.5
29				---	---	---	5.5	4.0	5.0	3.5	3.5	3.5
30				4.5	---	---	5.0	4.5	4.5	3.5	3.5	3.5
31				4.5	3.5	4.0	---	---	---	3.5	3.5	3.5
MONTH				4.5	3.5	4.0	5.5	3.5	4.5	6.0	3.0	3.5

12362500 SOUTH FORK FLATHEAD RIVER NEAR COLUMBIA FALLS, MT--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	3.5	3.5	3.5	6.0	3.5	5.0	4.0	3.5	4.0	6.0	4.0	5.0
2	6.5	3.5	5.0	4.5	3.5	4.0	4.0	3.5	4.0	6.0	5.0	5.5
3	6.5	4.5	5.5	4.0	3.5	3.5	4.0	3.5	4.0	6.0	5.5	5.5
4	6.0	4.5	5.0	5.0	3.5	4.0	4.5	3.5	4.0	5.5	4.0	4.5
5	5.0	4.5	5.0	5.5	3.5	4.5	7.0	4.0	5.5	4.5	4.0	4.5
6	4.5	4.0	4.5	5.0	3.5	4.0	6.0	3.5	4.5	4.5	4.0	4.0
7	5.5	4.0	4.5	4.5	3.5	4.0	4.5	4.0	4.0	4.5	4.0	4.0
8	6.0	4.5	5.0	6.5	3.5	5.0	4.0	4.0	4.0	6.0	4.5	5.0
9	6.5	4.5	5.5	5.5	3.5	4.0	4.0	4.0	4.0	6.5	5.5	6.0
10	6.5	4.5	5.5	4.5	3.5	4.0	4.0	4.0	4.0	5.5	4.0	4.5
11	6.5	4.0	5.0	4.5	3.5	3.5	4.0	4.0	4.0	4.5	4.0	4.5
12	5.5	3.5	4.0	4.5	3.5	4.0	6.5	4.0	5.5	4.5	4.0	4.0
13	6.5	4.0	5.5	4.0	3.5	3.5	5.5	4.0	4.5	4.5	4.5	4.5
14	5.5	3.5	4.0	4.0	3.5	4.0	4.5	4.0	4.0	5.0	4.5	4.5
15	4.0	3.5	3.5	5.0	3.5	4.0	4.0	4.0	4.0	6.0	4.5	5.0
16	6.5	3.5	5.0	4.0	3.5	4.0	4.5	4.0	4.0	6.5	5.5	5.5
17	6.0	5.0	5.5	4.0	3.5	3.5	4.0	4.0	4.0	6.0	4.0	4.5
18	5.5	3.5	4.0	4.0	3.5	4.0	4.5	4.0	4.0	4.5	4.5	4.5
19	4.5	3.5	3.5	4.5	4.0	4.0	4.5	4.0	4.0	5.0	4.5	4.5
20	4.5	3.5	3.5	4.5	4.0	4.0	4.0	4.0	4.0	6.0	5.0	5.5
21	3.5	3.5	3.5	4.5	3.5	4.0	4.0	4.0	4.0	6.5	5.5	5.5
22	3.5	3.5	3.5	7.0	4.0	5.5	4.5	4.0	4.0	6.0	5.0	5.5
23	3.5	3.5	3.5	5.5	3.5	4.0	4.0	4.0	4.0	6.0	5.0	5.5
24	5.5	3.5	4.0	4.0	3.5	4.0	4.5	4.0	4.0	6.0	5.0	5.5
25	5.5	3.5	4.0	4.0	3.5	4.0	4.5	4.0	4.0	5.5	5.0	5.0
26	7.0	5.0	5.5	4.0	3.5	4.0	4.5	4.0	4.0	6.0	5.0	5.5
27	7.0	3.5	5.5	4.0	4.0	4.0	4.5	4.0	4.0	6.0	5.0	5.5
28	4.5	3.5	4.0	4.5	4.0	4.0	4.5	4.0	4.0	6.0	5.5	5.5
29	4.0	3.5	3.5	6.5	4.0	5.5	4.0	4.0	4.0	5.5	5.0	5.5
30	6.0	4.0	5.0	5.5	3.5	4.0	4.0	4.0	4.0	6.0	5.5	5.5
31	---	---	---	4.0	4.0	4.0	4.0	4.0	4.0	---	---	---
MONTH	7.0	3.5	4.5	7.0	3.5	4.0	7.0	3.5	4.0	6.5	4.0	5.0
YEAR	7.0	3.0	4.5									

12363000 FLATHEAD RIVER AT COLUMBIA FALLS, MT

LOCATION.--Lat 48°21'43", long 114°11'02", in NW¼NW¼SE¼ sec.17, T.30 N., R.20 W., Flathead County, Hydrologic Unit 17010208, on right bank 200 ft (61 m) downstream from county road bridge at Columbia Falls, 5.7 mi (9.2 km) downstream from South Fork, and at mile 143.0 (230.1 km).

DRAINAGE AREA.--4,464 mi² (11,562 km²).

WATER DISCHARGE RECORDS

PERIOD OF RECORD.--May 1922 to September 1923 (fragmentary), June 1928 to current year. Monthly discharge only for some periods, published in WSP 1316.

REVISED RECORDS.--WSP 1092: 1923. WSP 1216: Drainage area. WSP 1636: 1958 (adjusted runoff).

GAGE.--Water-stage recorder. Datum of gage is 2,977.67 ft (907.594 m) National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Prior to Nov. 12, 1928, nonrecording gage on bridge 200 ft (61 m) upstream at datum 0.18 ft (0.058 m) higher.

REMARKS.--Water-discharge records good. South Fork Flathead River, which contributes about one-third of flow, completely regulated by Hungry Horse Reservoir 10.9 mi (17.5 km) upstream since Sept. 21, 1951 (see p. 728).

AVERAGE DISCHARGE.--51 years, 9,753 ft³/s (276.2 m³/s), 29.67 in/yr (754 mm/yr), 7,066,000 acre-ft/yr (8.71 km³/yr), adjusted for change in contents in Hungry Horse Reservoir since Oct. 1, 1951.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 176,000 ft³/s (4,980 m³/s) June 9, 1964, gage height, 25.58 ft (7.797 m), from floodmarks, from rating curve extended above 75,000 ft³/s (2,120 m³/s) on basis of slope-area measurement of peak flow; minimum, 798 ft³/s (22.6 m³/s) Dec. 8, 1929, gage height, -0.08 ft (-0.024 m).

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1894 reached a stage of 22.7 ft (6.92 m), from floodmarks, discharge, 142,000 ft³/s (4,020 m³/s), from rating curve extended above 75,000 ft³/s (2,120 m³/s) on basis of slope-area measurement of peak flow in 1964.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 43,200 ft³/s (1,220 m³/s) May 26, gage height, 12.51 ft (3.813 m); minimum daily, 1,040 ft³/s (29.5 m³/s) Feb. 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3020	10700	11000	10800	1310	1230	2090	15900	24200	10800	9240	3610
2	2950	8410	10900	8120	2680	1160	2000	20200	18900	15400	8960	2150
3	2870	8640	10900	10500	1310	1140	1980	14100	22300	14800	9070	2070
4	5040	9670	11000	7880	1280	1140	1950	20400	26900	11700	8500	7340
5	3990	9090	11000	10600	2470	3950	1940	19500	28300	13600	3220	8540
6	2570	10100	10800	8920	1330	1820	2020	26100	32000	14000	8110	8360
7	2480	11500	10700	4760	2460	2340	2430	28200	27100	14100	8700	8530
8	2400	11500	10700	7010	1080	1910	2900	25800	21600	8560	8660	2850
9	2330	11700	10700	7390	1040	1930	3260	21400	18500	12900	8600	1910
10	2260	11500	10900	7570	1110	1910	3740	20600	18100	12400	8530	7080
11	2180	11000	11000	3230	1200	1890	3860	20600	19700	11500	8090	8270
12	4350	11000	11000	1240	1230	5480	5580	21100	25600	11300	3010	8270
13	4420	11200	10900	4380	1430	5820	9730	16200	23800	12000	7710	8330
14	2280	11200	9230	1290	1510	5850	3690	22500	25100	11600	8310	8220
15	2020	11200	11000	3120	1320	5810	3420	24500	24100	9310	8340	2210
16	1970	5630	11000	1310	1470	5920	7780	28400	16400	8550	8340	1620
17	2820	2840	7380	1320	1300	2410	8510	31000	15300	8110	8640	5210
18	2800	6370	6990	3890	1300	2080	9540	30100	20700	7980	8350	5700
19	2770	8630	11000	2640	1320	5670	9820	29000	22800	7920	7850	3130
20	2760	9850	11000	1440	1290	6330	9620	28300	21600	9560	8670	1520
21	1830	10900	7590	1450	1280	6130	4980	27600	23300	10100	8760	1480
22	1850	10900	6260	3920	1230	6150	4650	31000	22400	4990	8820	1460
23	7180	9280	1570	5980	1410	6130	5990	34400	21900	7100	8690	1440
24	8640	2660	1410	4560	1450	2540	5620	38700	17000	7210	8420	1430
25	8940	7090	1340	7350	1420	2340	4270	41900	16100	6960	8760	1450
26	10800	11100	5600	9900	1390	5690	4550	42600	11900	6790	7990	1390
27	10700	11100	7540	11200	1250	6140	5420	40400	12200	8120	8670	1360
28	8710	11100	10800	3850	1250	5440	7060	40300	16900	8740	8610	1340
29	4650	11000	10800	11100	---	6310	9660	35000	16900	3790	8520	1300
30	10800	11000	11000	8330	---	6330	12400	29200	10900	8650	8530	1280
31	8560	---	10800	2080	---	2620	---	25600	---	9310	9500	---
TOTAL	140940	287860	283810	177130	40120	121610	160460	846600	622500	308350	254370	118850
MEAN	4546	9595	9155	5714	1433	3923	5349	27310	20750	9947	8205	3962
MAX	10800	11700	11000	11200	2680	6330	12400	42600	32000	15400	9500	8540
MIN	1830	2660	1340	1240	1040	1140	1940	14100	10900	3790	3010	1280
CFSM	1.02	2.15	2.05	1.28	.32	.88	1.20	6.12	4.65	2.23	1.84	.89
IN.	1.17	2.40	2.37	1.48	.33	1.01	1.34	7.05	5.19	2.57	2.12	.99
AC-FT	279600	571000	562900	351300	79560	241200	318300	1679000	1235000	611600	504500	235700
MEAN +	2,791	2,706	1,934	1,436	1,811	3,126	6,996	37,750	29,120	8,402	3,196	2,146
CFSM +	.63	.61	.43	.32	.41	.70	1.57	8.46	6.52	1.88	.72	.48
IN +	.72	.68	.50	.37	.42	.81	1.75	9.75	7.28	2.17	.83	.54
AC-FT+	171,600	161,000	118,900	88,300	100,600	192,200	416,300	2,321,000	1,733,000	516,600	196,500	127,700

OBSERVED

CAL YR 1978 TOTAL 3,366,055 MEAN 9,222 MAX 35,300 MIN 985 AC-FT 6,676,000
WTR YR 1979 TOTAL 3,362,600 MEAN 9,213 MAX 42,600 MIN 1,040 AC-FT 6,670,000

ADJUSTED

CAL YR 1978 TOTAL 3,619,915 MEAN 9,918 CFSM 2.22 IN 30.16 AC-FT 7,180,000
WTR YR 1979 TOTAL 3,097,394 MEAN 8,486 CFSM 1.90 IN 25.80 AC-FT 6,144,000

+ Adjusted for change in contents in Hungry Horse Reservoir.

12363000 FLATHEAD RIVER AT COLUMBIA FALLS, MT--Continued
(National Stream Quality Accounting Network)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1949-50, 1963-67, 1970, March to September 1979.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: August 1963 to September 1967 March to September 1979.
WATER TEMPERATURES: January 1949 to September 1950, August 1963 to September 1969, March to September 1979.

INSTRUMENTATION.--Temperature recorder since March 27, 1979.

REMARKS.--Water years 1968-69 temperature records published as Flathead River near Kalispell (station 12363500) 15 miles downstream. No appreciable inflow or outflow occurs between the two points.

EXTREMES FOR PERIOD OF RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily 233 micromhos Sept. 17, 1967; minimum daily, 121 micromhos May 28, 1979.
WATER TEMPERATURES: Maximum, 21.0°C Aug. 23, 1963, Aug. 8, 1968; minimum, 0.0°C on many days during winter periods most years.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 214 micromhos Sept. 30; minimum daily, 121 micromhos May 28.
WATER TEMPERATURES: Maximum, 19.0°C July 22; minimum, 0.0°C Mar. 28, 29.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPECIFIC CONDUCTANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE (DEG C) (00010)	TURBIDITY (NTU) (00076)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)
FEB 14...	1200	1500	1	181	7.3	-1.0	1.0	1.0	12.4	98
MAR 29...	1530	2330	87	196	8.5	3.0	3.5	.60	13.4	100
APR 27...	1230	5410	0	166	7.8	12.0	7.0	3.9	11.5	106
JUN 01...	1300	27400	1	156	7.8	17.0	7.5	17	10.8	100
26...	1230	12000	1	145	7.5	23.0	12.0	2.0	10.0	103
JUL 24...	1300	8580	1	167	7.5	29.0	14.5	1.0	9.8	107
AUG 22...	1230	11200	1	163	7.6	25.0	8.0	.40	10.3	96
SEP 25...	1100	1380	0	205	8.1	20.0	11.0	.50	10.2	103

DATE	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM AD-SORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY (MG/L AS CACO3) (00410)
FEB 14...	K2	K8	93	14	26	6.9	1.1	.1	.3	79
MAR 29...	62	33	93	0	26	6.7	1.1	.1	.3	93
APR 27...	K3	K3	87	8	24	6.6	1.2	.1	.3	79
JUN 01...	K4	K4	82	15	24	5.4	.9	.0	.6	67
26...	K2	K3	71	8	20	5.1	.9	.0	.2	63
JUL 24...	K8	K1	79	3	22	5.8	.8	.0	.5	76
AUG 22...	<1	<1	81	10	23	5.6	.8	.0	.4	71
SEP 25...	K12	K2	110	17	30	7.6	1.3	.1	1.1	89

12363000 FLATHEAD RIVER AT COLUMBIA FALLS, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)
FEB 14...	7.7	.4	.1	4.5	104	95	.14	421	.11
MAR 29...	6.6	.4	.1	4.6	111	102	.15	698	.08
APR 27...	8.7	.2	.1	5.3	94	94	.13	1370	.05
JUN 01...	9.4	.3	.1	4.1	80	85	.11	5920	.09
26...	5.1	.4	.1	4.3	78	74	.11	2530	.07
JUL 24...	11	.4	.1	4.2	77	91	.10	1780	.06
AUG 22...	12	.3	.1	4.3	89	89	.12	2690	.26
SEP 25...	9.2	.3	.1	4.9	98	108	.13	365	.05

DATE	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, KJEL-DAHL, TOTAL (MG/L AS N) (00625)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C) (00689)
FEB 14...	.01	.16	.17	.03	.02	.02	1.3	--	--
MAR 29...	.01	.08	.09	.07	.00	.01	1.2	--	--
APR 27...	.01	.13	.14	.07	.01	.01	2.6	--	--
JUN 01...	.02	.02	.04	.07	.01	.00	--	1.2	.4
26...	.02	.21	.23	.24	.00	.01	2.8	--	--
JUL 24...	.01	.05	.06	.09	.01	.03	.4	--	--
AUG 22...	.00	.33	.33	.10	.00	.00	--	6.6	1.0
SEP 25...	.00	1.0	1.0	.39	.02	.02	1.2	--	--

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)
JUN 01...	1300	1	0	100	100	1	1	10	10
AUG 22...	1230	1	1	100	100	1	<1	10	0

DATE	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO) (01037)	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)
JUN 01...	0	0	6	0	690	70	12	0	40
AUG 22...	0	<3	54	4	90	<10	--	--	0

12363000 FLATHEAD RIVER AT COLUMBIA FALLS, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG) (01077)	SILVER, DIS-SOLVED (UG/L AS AG) (01075)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
JUN									
01...	0	.2	.0	0	0	0	0	20	0
AUG									
22...	2	.0	.0	0	0	0	4	80	90

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1						207	201	156	155	139	170	192
2						209	199	143	148	144	166	191
3						207	196	141	141	142	164	192
4						206	195	143	145	151	169	167
5						178	190	154	134	160	176	166
6						178	191	158	134	147	167	165
7						198	192	155	135	148	157	198
8						194	190	137	133	144	155	203
9						197	181	139	135	147	158	202
10						203	182	139	132	150	161	165
11						200	163	147	131	166	165	163
12						176	160	146	151	152	166	170
13						205	161	148	128	155	162	207
14						163	166	145	132	152	160	213
15						167	165	154	129	156	159	210
16						166	163	143	151	155	157	209
17						198	162	142	133	158	157	167
18						197	179	154	131	156	156	164
19						164	178	145	132	153	158	205
20						169	180	140	134	161	157	204
21						171	183	137	137	155	160	207
22						162	185	141	140	161	159	210
23						172	184	144	138	154	160	208
24						196	185	152	136	158	159	206
25						193	185	138	134	161	159	205
26						162	160	131	131	159	158	207
27						164	160	139	---	160	157	209
28						164	162	121	---	158	162	210
29						188	160	123	---	177	184	210
30						193	161	142	133	149	183	214
31						196	---	130	---	157	183	---
MEAN						185	177	143	137	154	163	195

WTR YR 1979 MEAN 165 MAX 214 MIN 121

12363000 FLATHEAD RIVER AT COLUMBIA FALLS, MT--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1				---	---	---	4.0	2.0	2.5	6.0	4.5	5.0
2				---	---	---	4.5	2.5	3.0	5.5	4.0	4.5
3				---	---	---	3.5	2.5	3.0	6.0	5.0	5.5
4				---	---	---	3.5	2.5	3.0	6.0	4.5	5.0
5				---	---	---	6.0	3.0	4.5	5.0	4.5	4.5
6				---	---	---	7.0	4.5	6.0	4.5	3.5	4.0
7				---	---	---	6.5	5.0	6.0	4.5	3.5	4.0
8				---	---	---	6.0	4.0	5.0	4.5	4.0	4.5
9				---	---	---	5.5	4.5	5.0	6.5	4.0	5.0
10				---	---	---	4.0	3.5	3.5	6.5	5.0	5.5
11				---	---	---	5.0	3.5	4.0	6.0	5.0	5.5
12				---	---	---	5.0	3.5	4.0	6.5	5.0	5.5
13				---	---	---	4.0	3.5	4.0	7.0	5.5	6.5
14				---	---	---	6.0	3.5	4.5	7.0	5.5	6.0
15				---	---	---	5.5	4.0	4.5	7.0	6.0	6.5
16				---	---	---	4.5	4.0	4.5	7.0	5.5	6.0
17				---	---	---	5.0	4.0	4.5	6.0	4.5	5.0
18				---	---	---	---	4.0	---	6.0	5.5	5.5
19				---	---	---	---	---	---	6.5	5.5	6.0
20				---	---	---	---	---	---	7.5	5.5	6.5
21				---	---	---	---	---	---	7.5	6.5	7.0
22				---	---	---	---	---	---	7.5	6.0	7.0
23				---	---	---	---	---	---	8.0	6.5	7.0
24				---	---	---	---	---	---	8.0	6.5	7.0
25				---	---	---	---	---	---	7.5	6.0	6.5
26				---	---	---	---	---	---	8.0	6.5	7.0
27				2.5	.0	1.5	---	6.5	---	8.0	7.0	7.5
28				3.5	.0	2.0	7.5	6.5	7.0	7.5	5.5	6.0
29				3.5	2.5	3.0	7.0	5.5	6.5	6.0	5.0	5.5
30				3.5	3.0	3.5	6.5	5.0	6.0	6.5	5.5	6.0
31				3.5	2.5	3.0	---	---	---	7.0	6.0	6.5
MONTH				3.5	.0	2.5	7.5	2.0	4.5	8.0	3.5	6.0

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	7.5	6.5	7.5	11.0	9.0	10.5	14.0	8.0	9.5	15.0	6.5	11.5
2	9.5	7.5	6.5	10.0	7.5	8.5	14.5	8.0	9.5	15.5	13.0	14.5
3	9.5	8.5	9.0	9.5	7.5	9.0	13.5	8.0	9.5	15.5	14.0	14.5
4	9.5	8.0	8.5	13.5	9.0	11.0	14.5	7.5	9.5	14.0	6.5	9.5
5	8.5	7.5	7.5	14.0	10.0	12.0	18.0	8.0	14.5	10.0	6.5	7.5
6	7.5	6.0	6.5	14.0	10.5	12.0	16.5	7.5	11.5	11.0	6.5	7.5
7	7.5	6.0	6.5	14.0	10.5	12.0	13.0	7.5	9.0	11.0	6.5	7.5
8	8.5	7.0	8.0	14.5	10.5	13.5	13.5	7.5	9.0	16.0	7.0	12.0
9	9.5	7.5	8.5	14.5	10.0	12.0	13.5	7.5	9.0	15.5	13.5	14.5
10	9.5	8.5	9.0	14.0	9.5	11.5	13.5	7.0	8.5	13.5	6.5	9.5
11	10.5	8.5	9.5	12.5	8.5	10.0	14.0	7.0	8.5	10.0	6.0	7.0
12	10.5	9.0	9.5	11.0	8.0	9.5	16.5	7.5	14.0	9.5	6.0	7.0
13	10.5	9.0	9.5	11.5	8.0	9.0	15.0	6.5	10.0	9.5	6.0	7.0
14	9.5	7.5	8.0	12.5	8.0	9.5	12.5	6.0	7.5	9.5	6.0	7.0
15	8.0	7.0	7.5	14.0	8.5	11.0	12.0	6.5	8.0	13.5	6.5	11.0
16	10.0	8.0	9.0	13.0	8.5	10.5	12.5	6.5	8.0	15.0	12.0	13.0
17	10.0	9.0	9.5	14.0	10.5	11.5	12.5	7.0	8.0	13.0	6.5	9.5
18	10.0	8.0	9.0	15.0	10.5	12.0	13.0	6.5	8.0	11.5	6.5	8.0
19	9.0	7.5	8.0	15.5	11.0	12.5	13.5	7.0	8.5	12.0	6.5	9.0
20	8.5	7.5	8.0	15.5	9.5	12.0	12.5	6.5	8.0	14.0	11.5	12.5
21	8.5	7.0	8.0	15.5	9.5	11.0	12.5	7.0	8.0	15.0	12.0	13.0
22	9.0	7.5	8.5	19.0	9.5	16.0	12.0	7.0	8.5	13.5	11.0	12.5
23	9.0	8.0	8.5	17.5	11.0	14.0	13.0	7.0	8.5	13.5	11.0	12.0
24	11.0	8.5	9.5	15.0	10.5	12.0	13.5	6.5	8.0	13.0	10.5	11.5
25	12.5	9.0	10.5	15.0	10.5	12.0	12.0	6.5	8.0	12.0	10.0	11.0
26	13.0	11.5	12.5	14.0	10.0	11.5	13.5	6.5	8.5	13.5	11.0	12.0
27	14.0	11.0	13.0	14.5	8.5	11.0	12.0	7.0	6.0	14.0	11.5	12.5
28	13.0	9.5	11.0	15.0	8.0	10.5	12.5	7.0	8.0	13.5	11.0	12.5
29	13.0	9.5	11.0	16.5	8.5	14.5	12.5	7.0	8.0	12.5	10.0	11.0
30	13.0	11.0	12.0	16.0	8.0	11.5	12.5	7.0	8.0	12.5	10.0	11.0
31	---	---	---	14.0	8.0	9.5	8.5	6.5	7.5	---	---	---
MONTH	14.0	6.0	9.0	19.0	7.5	11.5	18.0	6.0	9.0	16.0	6.0	10.5
YEAR	19.0	.0	8.5									

12363000 FLATHEAD RIVER AT COLUMBIA FALLS, MT--Continued

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPERATURE (DEG C) (00010)	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
FEB						
14...	1200	1.0	1500	4	16	70
MAR						
29...	1530	3.5	2330	7	44	71
APR						
27...	1230	7.0	5410	11	161	92
JUN						
01...	1300	7.5	27400	63	4660	61
26...	1230	12.0	12000	13	421	85
JUL						
24...	1300	14.5	8560	3	69	66
AUG						
22...	1230	8.0	11200	5	151	38
SEP						
25...	1100	11.0	1380	1	3.7	75

DATE	TIME	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	BAROMETRIC PRESSURE (MM OF HG) (00025)	WEATHER (WMO CODE NUMBER) (00041)
AUG									
16...	0800	183	8.3	13.5	10.0	10.1	99	683	40
16...	0900	187	8.2	15.5	11.0	10.0	101	684	0
16...	1000	189	8.3	17.5	12.0	10.1	104	684	0
16...	1100	190	8.3	21.5	13.0	9.7	102	684	0
16...	1200	169	8.1	24.0	9.0	10.6	102	683	0
16...	1300	164	8.2	24.0	7.5	10.6	98	683	0
16...	1400	164	8.1	24.0	8.0	10.5	99	683	0
16...	1500	164	8.0	25.0	8.0	10.5	99	682	0
16...	1600	164	8.1	25.5	8.0	10.4	98	682	0
16...	1700	164	8.1	25.5	8.0	10.4	98	682	0
16...	1800	164	8.1	26.0	8.0	10.4	98	682	1
16...	1900	164	8.3	25.0	8.0	10.4	98	682	1
16...	2000	164	8.1	22.0	7.5	10.3	96	682	0
16...	2100	163	8.1	19.0	7.5	10.3	96	682	0
16...	2200	163	8.1	16.5	7.5	10.2	95	682	0
16...	2300	163	8.1	15.0	7.5	10.1	94	682	0
16...	2400	162	8.1	14.0	7.5	10.1	94	682	0
17...	0100	162	8.1	12.5	7.5	10.1	94	682	0
17...	0200	162	8.1	12.0	7.5	10.1	94	682	0
17...	0300	165	8.1	12.0	8.0	10.2	96	683	0
17...	0400	170	8.1	14.0	8.5	10.0	95	684	0
17...	0500	172	8.2	13.5	8.5	9.9	94	684	0
17...	0600	175	8.2	11.0	9.0	9.7	93	684	0
17...	0700	180	8.2	13.0	10.0	9.6	94	684	0
17...	0800	184	8.3	16.0	11.0	9.6	96	684	0

12363000 FLATHEAD RIVER AT COLUMBIA FALLS, MT--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

PERIPHYTON

DATE	TIME	LENGTH OF EXPOSURE (DAYS) (00022)	PERIPHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M (00573)	PERIPHYTON BIOMASS ASH WEIGHT G/SQ M (00572)	CHLOR-A PERIPHYTON CHROMOGRAPHIC FLUOROM (MG/M2) (70957)	CHLOR-B PERIPHYTON CHROMOGRAPHIC FLUOROM (MG/M2) (70958)	BIOMASS CHLOROPHYLL RATIO PERIPHYTON (UNITS) (70950)
JUN							
01...	1300	35	.240	.160	.000	.000	.00

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

PHYTOPLANKTON

DATE	MAR 29,79		JUN 1,79		JUL 24,79		AUG 22,79		SEP 25,79	
TIME	1530		1300		1300		1230		1100	
TOTAL CELLS/ML	72		0		64		250		26	
DIVERSITY: DIVISION	0.0		0.0		0.7		0.0		0.0	
.CLASS	0.0		0.0		0.7		0.0		0.0	
..ORDER	0.0		0.0		0.7		0.3		0.0	
...FAMILY	0.7		0.0		1.9		0.3		1.0	
....GENUS	0.7		0.0		1.9		0.3		1.0	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHRYSOPHYTA										
.BACILLARIOPHYCEAE										
..CENTRALES										
...COSCINODISCACEAE										
....MELOSIRA	--	-	--	-	--	-	230#	95	--	-
..PENNALES										
...ACHNANTHACEAE										
....ACHNANTHES	58#	80	--	-	26#	40	--	-	13#	50
...EUNOTIACEAE										
....EUNOTIA	14#	20	--	-	--	-	--	-	--	-
...FRAGILARIACEAE										
....FRAGILARIA	--	-	--	-	--	-	--	-	13#	50
...NAVICULACEAE										
....NAVICULA	--	-	--	-	13#	20	--	-	--	-
...NITZSCHIACEAE										
....NITZSCHIA	--	-	--	-	13#	20	13	5	--	-
EUGLENOPHYTA (EUGLENOIDS)										
.EUGLENOPHYCEAE										
..EUGLENALES										
...EUGLENACEAE										
....TRACHELOMONAS	--	-	--	-	13#	20	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
 * - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

12363920 STILLWATER RIVER AT OLNEY, MT

LOCATION (REVISED).--Lat 48°32'35", long 114°34'30", in NE¼NW¼NE¼ sec.18, T.32 N., R.23 W., Flathead County, Hydrologic Unit 17010210, Stillwater State Forest, on left bank, 50 ft (15 m) downstream from bridge, 0.8 mi (1.3 km) upstream from Lower Stillwater Lake, 0.4 mi (0.6 km) south of Olney, and at mile 38.2 (61.5 km).

DRAINAGE AREA.--146 mi² (378 km²).

PERIOD OF RECORD.--October 1972 to current year.

GAGE.--Water-stage recorder. Datum of gage is 3,072.46 ft (936.486 m) National Geodetic Vertical Datum of 1929. October 2, 1972, to May 31, 1977, nonrecording gage and crest-stage gage on bridge 0.5 mi (0.8 km) downstream at datum 21.56 ft (6.571 m) lower. June 1, 1977, to September 30, 1978, nonrecording gage on bridge 50 feet (15 m) upstream at same datum.

REMARKS.--Records good except those for winter period, which are poor. No regulation or diversion above station. Several observations of water temperature were made during the year and are available in files of Helena district office.

AVERAGE DISCHARGE.--7 years, 148 ft³/s (4.191 m³/s), 13.77 in/yr (350 mm/yr) 107,200 acre-ft/yr (132 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge observed, 1,740 ft³/s (49.3 m³/s) June 18, 1974, gage height, 4.42 ft (1.347 m); maximum gage height observed, 5.72 ft (1.743 m) Jan. 9, 1973 (backwater from ice); minimum daily discharge, 25 ft³/s (0.71 m³/s) Dec. 8, 1972, site and datum then in use.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 630 ft³/s (17.8 m³/s) May 28, gage height, 3.00 ft (0.914 m); minimum daily, 26 ft³/s (0.74 m³/s) Feb. 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	78	60	56	28	28	42	74	263	469	202	88	70
2	76	59	55	31	26	42	71	286	440	204	85	69
3	75	60	54	29	28	41	70	297	430	201	84	68
4	74	69	54	28	30	41	68	301	440	194	81	67
5	73	71	52	28	36	41	68	324	465	186	79	65
6	72	72	45	29	38	41	71	399	489	181	77	65
7	71	72	40	29	39	43	80	490	501	176	75	64
8	71	71	42	29	39	44	92	513	480	172	73	62
9	70	70	44	30	40	46	102	485	444	165	72	61
10	69	65	47	30	40	47	114	444	413	159	71	60
11	68	60	48	31	42	47	122	409	394	154	69	58
12	66	56	48	33	43	48	124	384	383	149	67	57
13	65	53	46	32	48	47	128	371	380	145	65	55
14	65	51	44	31	47	47	132	367	376	142	65	54
15	64	49	45	30	47	48	138	370	365	138	65	53
16	64	49	46	30	47	50	140	384	347	134	65	53
17	64	52	46	31	47	53	153	406	331	130	66	51
18	64	53	47	32	47	55	175	424	320	127	66	50
19	63	52	46	33	48	58	185	429	314	123	65	49
20	62	51	46	34	47	65	186	427	312	119	65	48
21	63	49	47	36	46	65	181	425	301	116	65	48
22	61	48	48	35	44	67	176	428	288	113	67	46
23	61	48	48	34	43	67	172	445	274	109	68	46
24	62	47	48	35	42	71	169	477	261	106	71	45
25	61	48	45	34	41	77	166	532	248	103	71	45
26	61	48	43	31	41	83	166	576	237	100	70	45
27	60	49	40	29	42	85	174	599	229	99	69	43
28	59	53	38	28	43	83	189	623	220	96	69	43
29	61	53	35	27	---	80	209	603	212	95	68	42
30	61	54	30	26	---	77	232	557	204	93	67	42
31	61	---	28	29	---	76	---	510	---	91	71	---
TOTAL	2045	1692	1401	954	1149	1777	4127	13548	10567	4322	2199	1624
MEAN	66.0	56.4	45.2	30.8	41.0	57.3	138	437	352	139	70.9	54.1
MAX	78	72	56	36	48	85	232	623	501	204	88	70
MIN	59	47	28	27	26	41	68	263	204	91	65	42
CFSM	.45	.39	.31	.21	.28	.39	.95	2.99	2.41	.95	.49	.37
IN.	.52	.43	.36	.24	.29	.45	1.05	3.45	2.69	1.10	.56	.41
AC-FT	4060	3360	2780	1890	2280	3520	8190	26870	20960	8570	4360	3220

CAL YR 1978 TOTAL 60387 MEAN 165 MAX 741 MIN 28 CFSM 1.13 IN 15.39 AC-FT 119800
WTR YR 1979 TOTAL 45405 MEAN 124 MAX 623 MIN 26 CFSM .85 IN 11.57 AC-FT 90060

12365000 STILLWATER RIVER NEAR WHITEFISH, MT

LOCATION.--Lat 48°19'08", long 114°23'11", in NE¼SW¼ sec.34, T.30 N., R.22 W., Flathead County, Hydrologic Unit 17010210, on right bank 600 ft (180 m) downstream from road bridge, 6.2 mi (10.0 km) southwest of Whitefish, 10.6 mi (17.1 km) upstream from Whitefish River, and 13.6 mi (21.9 km) upstream from mouth.

DRAINAGE AREA.--524 mi^2 (1,357 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October and November 1930 (monthly discharge only, published in WSP 1316), December 1930 to September 1950, October 1972 to current year.

REVISED RECORDS.--WSP 1736: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,953.26 ft (900.154 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good except those for winter period, which are poor. Diversions for irrigation of about 200 acres (809,000 m^2) above station.

AVERAGE DISCHARGE.--27 years (water years 1931-50, 1973-79), 336 ft^3/s (9.516 m^3/s), 8.71 in/yr (221 mm/yr), 243,400 acre-ft/yr (300 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,330 ft^3/s (123 m^3/s) May 26, 1948, gage height, 20.90 ft (6.370 m), from floodmark; minimum daily, 40 ft^3/s (1.13 m^3/s) Dec. 24, 1944.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,940 ft^3/s (54.9 m^3/s) May 10, gage height, 13.45 ft (4.100 m); minimum daily, 55 ft^3/s (1.56 m^3/s) Feb. 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	150	114	115	58	57	102	206	946	1350	332	154	127
2	148	112	115	60	55	98	197	1080	1220	331	146	129
3	145	111	113	64	60	96	193	1200	1100	329	140	123
4	143	116	110	67	70	98	189	1290	996	322	139	119
5	141	131	105	66	85	100	196	1370	930	315	134	119
6	139	145	100	64	92	104	211	1460	907	306	129	121
7	138	143	95	64	96	108	223	1600	916	295	122	121
8	136	142	100	64	90	112	242	1770	926	288	119	118
9	134	140	105	64	93	116	269	1900	903	279	118	118
10	134	139	108	68	98	120	322	1940	841	269	114	116
11	132	100	110	74	105	122	366	1880	775	260	110	114
12	129	102	110	76	110	123	378	1760	727	253	108	111
13	126	104	105	75	115	122	389	1620	686	247	107	109
14	123	106	96	74	110	120	401	1520	651	241	105	136
15	122	108	94	70	105	125	411	1460	624	238	108	117
16	121	110	98	70	105	130	426	1440	600	235	107	111
17	120	110	95	74	110	140	450	1450	575	224	106	109
18	119	108	96	76	115	145	505	1490	556	217	104	105
19	118	106	98	80	120	155	569	1530	544	208	102	102
20	117	104	100	85	115	165	606	1560	538	202	104	100
21	117	100	100	90	110	175	619	1570	528	202	105	98
22	118	100	100	88	105	180	608	1540	510	199	111	96
23	118	98	100	86	100	190	597	1510	488	194	111	93
24	116	98	100	84	96	195	584	1480	462	186	109	92
25	115	98	95	80	96	200	569	1480	436	180	109	91
26	114	100	90	76	100	210	559	1520	410	180	113	90
27	113	105	85	72	102	219	574	1550	391	177	117	89
28	112	110	80	68	105	220	617	1570	372	173	117	88
29	112	115	70	64	---	221	698	1570	355	171	114	88
30	115	115	65	62	---	220	807	1530	342	165	111	87
31	116	---	60	59	---	213	---	1450	---	159	115	---
TOTAL	3901	3390	3013	2222	2720	4644	12981	47036	20659	7377	3608	3237
MEAN	126	113	97.2	71.7	97.1	150	433	1517	689	238	116	108
MAX	150	145	115	90	120	221	807	1940	1350	332	154	136
MIN	112	98	60	58	55	96	189	946	342	159	102	87
CFSM	.24	.22	.19	.14	.19	.29	.83	2.90	1.32	.45	.22	.21
IN.	.28	.24	.21	.16	.19	.33	.92	3.34	1.47	.52	.26	.23
AC-FT	7740	6720	5980	4410	5400	9210	25750	93300	40980	14630	7160	6420

CAL YR 1978 TOTAL 141699 MEAN 388 MAX 1670 MIN 56 CFSM .74 IN 10.06 AC-FT 281100
WTR YR 1979 TOTAL 114786 MEAN 314 MAX 1940 MIN 55 CFSM .60 IN 8.15 AC-FT 227700

12365000 STILLWATER RIVER NEAR WHITEFISH, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: July 1977 to current year.

INSTRUMENTATION.--Temperature recorder since July 12, 1977.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum, 23.5°C July 23, Aug. 2, 1977; minimum, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum, 21.5°C July 19; minimum, 0.0°C on many days during November to March.

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	11.5	10.5	11.0	4.0	2.5	3.0	.0	.0	.0	.0	.0	.0
2	11.0	9.5	10.5	3.0	2.0	2.5	.0	.0	.0	.0	.0	.0
3	10.5	9.0	10.0	4.0	2.5	3.0	.0	.0	.0	.0	.0	.0
4	10.0	8.5	9.0	4.5	4.0	4.0	.0	.0	.0	.0	.0	.0
5	9.5	8.0	9.0	4.0	3.0	3.5	.5	.0	.0	.0	.0	.0
6	9.5	7.5	8.5	3.5	3.0	3.0	.5	.0	.0	.0	.0	.0
7	9.0	7.5	8.5	3.5	2.5	3.0	.0	.0	.0	.0	.0	.0
8	9.5	8.0	9.0	4.5	3.5	4.0	.0	.0	.0	.0	.0	.0
9	9.5	8.0	9.0	4.5	2.5	3.5	.0	.0	.0	.0	.0	.0
10	9.5	8.5	9.0	2.5	1.0	1.5	.0	.0	.0	.0	.0	.0
11	9.5	9.0	9.0	1.0	.0	.5	.0	.0	.0	.0	.0	.0
12	9.0	8.0	8.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
13	8.0	6.5	7.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
14	7.0	6.0	6.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
15	6.5	5.5	6.0	.5	.0	.0	.0	.0	.0	.0	.0	.0
16	7.0	6.0	6.5	.5	.0	.0	.0	.0	.0	.0	.0	.0
17	7.5	6.5	7.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
18	7.5	6.5	7.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
19	7.5	6.5	7.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
20	7.5	6.5	7.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
21	7.5	7.0	7.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
22	7.0	5.5	6.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
23	7.0	6.0	6.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
24	6.5	6.0	6.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
25	6.0	5.0	5.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
26	5.5	4.5	5.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
27	5.0	4.5	5.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
28	5.5	5.0	5.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
29	6.0	5.5	5.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
30	5.5	5.0	5.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
31	5.0	4.0	4.5	---	---	---	.0	.0	.0	.0	.0	.0
MONTH	11.5	4.0	7.5	4.5	.0	1.0	.5	.0	.0	.0	.0	.0

12365000 STILLWATER RIVER NEAR WHITEFISH, MT--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	.0	.0	.0	.0	.0	.0	---	---	---	9.0	7.5	8.5
2	.0	.0	.0	.0	.0	.0	---	---	---	8.5	7.0	8.0
3	.0	.0	.0	.0	.0	.0	4.0	---	---	9.0	7.0	8.0
4	.0	.0	.0	.0	.0	.0	4.5	3.5	4.0	8.5	7.5	8.0
5	.0	.0	.0	.0	.0	.0	6.5	4.0	5.0	8.0	8.0	8.0
6	.0	.0	.0	.0	.0	.0	6.0	4.5	5.5	7.5	7.0	7.5
7	.0	.0	.0	.0	.0	.0	6.5	5.5	6.0	7.5	6.5	7.0
8	.0	.0	.0	.0	.0	.0	6.0	5.5	5.5	7.5	6.5	7.0
9	.0	.0	.0	.0	.0	.0	5.5	4.5	5.0	8.0	7.0	7.5
10	.0	.0	.0	.0	.0	.0	5.0	4.0	4.5	9.0	7.5	8.5
11	.0	.0	.0	.0	.0	.0	4.0	3.5	4.0	9.0	8.0	8.5
12	.0	.0	.0	.0	.0	.0	5.0	4.0	4.5	9.5	8.5	9.0
13	.0	.0	.0	.0	.0	.0	6.0	4.0	5.0	9.5	8.0	8.5
14	.0	.0	.0	.0	.0	.0	6.5	5.0	6.0	10.0	8.5	9.5
15	.0	.0	.0	.0	.0	.0	6.5	5.5	5.5	11.0	8.5	10.0
16	.0	.0	.0	.0	.0	.0	6.5	4.5	5.5	11.5	10.0	10.5
17	.0	.0	.0	.0	.0	.0	7.0	5.5	6.0	11.0	9.5	10.0
18	.0	.0	.0	.0	.0	.0	7.0	5.5	6.0	10.5	9.0	9.5
19	.0	.0	.0	.0	.0	.0	6.5	5.0	5.5	11.5	9.5	10.5
20	.0	.0	.0	.0	.0	.0	6.5	5.0	5.5	11.5	10.0	10.5
21	.0	.0	.0	.0	.0	.0	6.0	4.0	5.0	12.5	10.0	11.0
22	.0	.0	.0	.0	.0	.0	6.5	4.5	5.5	13.5	11.0	12.5
23	.0	.0	.0	.0	.0	.0	5.5	4.5	5.0	14.0	11.5	12.5
24	.0	.0	.0	.0	.0	.0	5.5	4.5	5.0	14.5	13.0	13.5
25	.0	.0	.0	.0	.0	.0	6.5	4.5	5.5	14.5	13.0	14.0
26	.0	.0	.0	2.0	.0	1.0	7.5	5.0	6.5	15.0	13.0	14.0
27	.0	.0	.0	2.0	1.5	2.0	9.5	6.5	8.0	15.5	14.0	14.5
28	.0	.0	.0	2.5	1.0	1.5	10.5	7.0	8.5	14.5	13.5	14.0
29	---	---	---	3.0	1.5	2.5	10.0	7.5	9.0	13.5	12.0	12.5
30	---	---	---	3.5	3.0	---	10.0	7.5	9.0	12.5	11.0	11.5
31	---	---	---	---	---	---	---	---	---	13.0	11.0	11.5
MONTH	.0	.0	.0	3.5	.0	.0	10.5	3.5	6.0	15.5	6.5	10.0

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	14.0	11.5	12.5	18.5	17.0	17.5	---	---	---	18.0	17.0	17.5
2	14.5	12.5	13.5	17.0	16.0	16.0	20.0	---	---	18.0	16.5	17.5
3	15.5	13.0	14.5	16.5	14.5	15.5	19.5	17.5	18.5	17.5	16.5	17.0
4	16.0	14.0	15.0	18.0	16.0	16.5	19.0	18.0	18.5	16.5	15.5	16.0
5	15.0	13.5	14.5	19.0	17.5	18.0	19.5	17.5	18.5	16.0	14.5	15.0
6	14.5	13.5	14.0	20.0	18.5	19.5	19.0	17.5	18.5	16.0	14.5	15.5
7	13.0	12.0	12.5	20.5	19.5	20.0	19.0	17.5	18.5	16.5	15.0	16.0
8	14.0	12.0	12.5	20.0	19.0	19.5	19.0	17.5	18.5	17.0	15.5	16.5
9	14.5	12.5	13.5	19.5	19.0	19.5	19.0	17.5	18.5	17.0	16.5	17.0
10	15.5	13.5	14.5	19.5	19.5	19.5	19.5	18.0	18.5	16.5	15.0	15.5
11	16.5	13.5	15.0	19.5	18.0	19.0	19.0	18.0	18.5	15.5	14.5	15.0
12	18.0	15.0	16.0	18.0	17.5	18.0	19.5	18.0	18.5	15.0	13.5	14.5
13	18.0	15.0	16.5	18.0	16.5	17.0	19.0	18.0	18.5	15.0	13.5	14.0
14	16.5	15.5	16.0	18.0	17.0	17.5	19.0	17.5	18.0	14.5	13.0	14.0
15	15.5	14.5	15.0	18.0	17.0	17.5	18.0	17.0	18.0	15.0	13.5	14.0
16	16.0	14.0	15.0	19.0	17.0	18.0	18.5	16.5	17.5	15.5	14.0	14.5
17	16.5	14.5	15.5	20.0	17.5	18.5	18.5	17.0	18.0	15.0	14.0	14.5
18	15.5	14.5	15.0	21.0	18.5	20.0	18.5	18.0	18.5	15.0	14.0	14.5
19	16.0	15.0	15.5	21.5	19.0	20.5	19.5	18.5	19.0	15.0	14.0	14.5
20	15.5	14.0	14.5	---	---	---	20.0	18.5	19.0	15.0	14.0	14.5
21	16.0	14.0	15.0	---	---	---	20.5	19.0	19.5	15.0	14.0	14.5
22	16.5	14.5	15.5	---	---	---	20.5	19.5	20.0	14.5	13.5	14.0
23	17.5	15.0	16.0	---	---	---	20.0	18.5	19.0	14.0	13.0	13.5
24	18.0	15.0	16.5	---	---	---	19.5	19.0	19.0	14.0	12.5	13.0
25	19.0	15.5	17.0	---	---	---	19.0	18.0	18.5	13.5	12.0	13.0
26	20.0	17.0	18.5	---	---	---	19.0	18.0	18.5	14.0	13.0	13.5
27	20.0	18.0	19.0	---	---	---	19.0	18.0	18.5	14.0	12.5	13.5
28	20.5	18.0	19.0	---	---	---	19.0	17.5	18.5	14.0	13.0	13.5
29	20.5	18.5	19.5	---	---	---	19.0	17.5	18.0	13.0	12.0	12.5
30	20.5	18.5	19.0	---	---	---	19.0	18.0	18.5	12.5	11.5	12.0
31	---	---	---	---	---	---	19.0	18.0	18.5	---	---	---
MONTH	20.5	11.5	15.5	21.5	14.5	18.5	20.5	16.5	18.5	18.0	11.5	14.5
YEAR	21.5	.0	7.5									

12365800 SWIFT CREEK NEAR WHITEFISH, MT

LOCATION.--Lat 48°28'59", long 114°25'52", in NE¼SE¼NW¼ sec.5, T.31 N., R.22 W., Flathead County, Hydrologic Unit 17010210, on left bank 150 ft (46 m) downstream from farm road bridge, 0.2 mi (0.3 km) downstream from county road bridge, 0.5 mi (0.8 km) upstream from Whitefish Lake, and 7.0 mi (11.3 km) northwest of Whitefish.

DRAINAGE AREA.--78.0 mi² (202.0 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1972 to current year.

GAGE.--Water-stage recorder. Datum of gage is 3,003.03 ft (915.324 m) National Geodetic Vertical Datum of 1929 (levels by Soil Conservation Service).

REMARKS.--Water-discharge records fair except those for winter period, which are poor. No known regulation or diversions upstream.

AVERAGE DISCHARGE.--7 years, 138 ft³/s (3.908 m³/s), 24.03 in/yr (610 mm/yr), 99,980 acre-ft/yr (123 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,980 ft³/s (56.1 m³/s) June 18, 1974, gage height, 6.70 ft (2.042 m); minimum, 0.65 ft³/s (0.018 m³/s) Dec. 3, 1972, gage height, 1.11 ft (0.338 m), result of freezeup.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,110 ft³/s (31.4 m³/s) May 6, gage height, 6.25 ft (1.905 m); minimum, 2.3 ft³/s (0.065 m³/s) Nov. 11, gage height, 3.01 ft (0.917 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	45	30	25	11	8.0	31	25	375	448	159	65	39
2	44	29	24	12	7.0	31	24	380	454	173	63	37
3	43	31	24	11	10	30	22	400	485	155	63	37
4	42	68	24	10	12	30	22	418	552	148	62	38
5	42	54	22	10	16	30	24	605	573	148	60	38
6	41	42	20	11	20	30	31	1030	609	145	58	35
7	40	39	18	11	22	31	45	864	545	131	57	33
8	39	38	20	11	22	31	49	623	479	121	56	32
9	39	35	22	12	23	32	57	480	428	115	54	32
10	38	33	23	12	23	32	67	420	412	112	53	32
11	38	30	23	14	24	33	60	376	407	109	52	31
12	40	27	23	15	25	34	55	376	416	109	51	30
13	40	25	22	14	28	34	53	374	416	107	50	30
14	40	24	22	13	30	34	53	389	391	104	50	29
15	39	23	23	11	32	35	56	436	355	101	51	28
16	38	22	24	11	32	38	66	486	322	97	50	27
17	37	22	24	12	32	40	124	502	301	94	47	26
18	36	22	24	14	32	43	146	496	289	92	46	26
19	35	21	23	14	33	43	125	490	315	90	45	25
20	35	20	23	15	33	43	105	482	279	88	45	25
21	36	18	24	18	32	43	94	494	260	87	47	24
22	35	16	25	17	31	44	97	545	248	83	52	24
23	33	16	25	16	30	43	100	611	233	80	48	23
24	33	16	25	17	29	45	98	800	214	77	48	23
25	33	17	24	15	29	51	101	816	193	75	48	23
26	32	19	22	13	29	49	124	840	176	72	45	22
27	32	21	21	11	30	45	168	876	176	67	43	22
28	31	23	20	9.0	31	39	236	794	159	67	42	21
29	36	24	17	8.0	---	30	273	647	162	67	41	21
30	34	25	13	9.0	---	27	326	559	148	65	40	22
31	32	---	10	10	---	26	---	493	---	65	47	---
TOTAL	1158	830	679	387.0	705.0	1127	2826	17479	10445	3203	1579	855
MEAN	37.4	27.7	21.9	12.5	25.2	36.4	94.2	564	348	103	50.9	28.5
MAX	45	68	25	18	33	51	326	1030	609	173	65	39
MIN	31	16	10	8.0	7.0	26	22	374	148	65	40	21
CFSM	.48	.36	.28	.16	.32	.47	1.21	7.23	4.46	1.32	.65	.37
IN.	.55	.40	.32	.18	.34	.54	1.35	8.34	4.98	1.53	.75	.41
AC-FT	2300	1650	1350	768	1400	2240	5610	34670	20720	6350	3130	1700

CAL YR 1978 TOTAL 57058.0 MEAN 156 MAX 916 MIN 4.0 CFSM 2.00 IN 27.21 AC-FT 113200
WTR YR 1979 TOTAL 41273.0 MEAN 113 MAX 1030 MIN 7.0 CFSM 1.45 IN 19.68 AC-FT 81860

12365800 SWIFT CREEK NEAR WHITEFISH, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: September 1977 to current year.

INSTRUMENTATION.--Temperature recorder since September 1, 1977.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum, 19.5°C Aug. 5, 1979; minimum, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum, 19.5°C Aug. 5; minimum, 0.0°C on many days during November to March.

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	9.0	6.5	8.0	3.5	.5	2.0	.0	.0	.0	.0	.0	.0
2	9.5	4.5	7.0	3.5	.5	2.0	.0	.0	.0	.0	.0	.0
3	8.0	5.0	6.5	5.0	3.5	4.0	.0	.0	.0	.0	.0	.0
4	9.5	4.5	6.5	5.5	2.5	4.5	.0	.0	.0	.0	.0	.0
5	9.0	4.0	6.5	3.0	1.0	2.0	.0	.0	.0	.0	.0	.0
6	9.0	4.0	6.5	3.0	1.0	2.0	.0	.0	.0	.0	.0	.0
7	9.0	4.0	6.5	4.5	3.0	4.0	.0	.0	.0	.0	.0	.0
8	9.5	4.5	7.0	5.5	4.0	4.5	.0	.0	.0	.0	.0	.0
9	9.5	4.5	7.0	3.5	.0	1.5	.0	.0	.0	.0	.0	.0
10	8.5	5.5	7.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11	8.5	6.0	7.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12	7.5	3.5	5.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
13	6.5	2.5	4.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
14	7.0	2.5	4.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
15	7.5	3.0	5.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
16	7.5	4.0	5.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
17	8.0	4.5	6.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
18	8.0	4.0	6.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
19	7.5	3.5	5.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
20	7.5	4.0	5.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
21	7.0	5.0	6.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
22	5.5	2.0	4.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
23	7.0	4.0	5.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
24	7.0	4.5	5.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
25	5.5	2.5	4.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
26	5.0	1.5	3.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
27	5.5	3.0	4.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
28	6.5	4.0	5.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
29	5.5	4.0	5.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
30	5.5	3.0	4.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
31	4.0	1.0	2.5	---	---	---	.0	.0	.0	.0	.0	.0
MONTH	9.5	1.0	5.5	5.5	.0	1.0	.0	.0	.0	.0	.0	.0

12365800 SWIFT CREEK NEAR WHITEFISH, MT--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	.0	.0	.0	.0	.0	.0	1.5	.5	1.0	7.0	5.0	5.5
2	.0	.0	.0	.0	.0	.0	2.5	.5	1.5	9.0	4.0	6.0
3	.0	.0	.0	.0	.0	.0	2.0	1.0	1.5	7.0	4.0	5.5
4	.0	.0	.0	.0	.0	.0	1.5	1.0	1.5	6.0	5.0	5.5
5	.0	.0	.0	.0	.0	.0	3.0	1.0	2.0	5.0	4.5	5.0
6	.0	.0	.0	.0	.0	.0	3.0	1.5	2.5	4.5	4.0	4.0
7	.0	.0	.0	.0	.0	.0	4.5	2.0	3.0	5.0	3.5	4.0
8	.0	.0	.0	.0	.0	.0	5.5	1.0	3.0	5.0	4.0	4.5
9	.0	.0	.0	.0	.0	.0	3.5	2.0	3.0	6.0	4.0	5.0
10	.0	.0	.0	.0	.0	.0	3.5	1.0	2.0	5.5	5.0	5.5
11	.0	.0	.0	.0	.0	.0	6.5	1.5	3.5	6.5	5.5	6.0
12	.0	.0	.0	.0	.0	.0	6.0	1.5	3.5	6.5	5.5	6.0
13	.0	.0	.0	.0	.0	.0	5.0	2.5	3.5	7.0	5.5	6.5
14	.0	.0	.0	.0	.0	.0	6.5	2.5	4.0	7.5	6.5	7.0
15	.0	.0	.0	.0	.0	.0	7.0	2.5	4.5	7.5	6.5	7.0
16	.0	.0	.0	.5	.0	.5	6.5	3.0	4.5	7.0	6.0	6.5
17	.0	.0	.0	1.0	.5	.5	5.0	3.0	4.0	7.0	6.0	6.5
18	.0	.0	.0	1.5	.5	1.0	5.5	2.0	3.5	7.5	6.5	7.0
19	.0	.0	.0	1.5	.5	1.0	5.0	3.0	4.0	8.5	7.5	8.0
20	.0	.0	.0	1.5	.5	1.0	5.5	3.0	4.0	7.5	6.5	7.5
21	.0	.0	.0	1.5	.5	1.0	8.0	2.5	5.0	7.5	6.5	6.5
22	.0	.0	.0	1.5	1.0	1.0	5.5	3.0	4.5	8.0	7.0	7.5
23	.0	.0	.0	2.0	1.0	1.5	5.5	4.0	4.5	8.5	7.0	8.0
24	.0	.0	.0	2.5	1.0	1.5	6.0	3.5	5.0	9.0	8.0	8.5
25	.0	.0	.0	3.5	1.5	2.0	7.5	3.0	5.0	9.5	8.0	9.0
26	.0	.0	.0	2.0	.5	1.5	9.5	4.0	6.5	9.5	8.0	9.0
27	.0	.0	.0	1.0	.5	.5	10.5	4.0	7.0	9.5	8.5	9.0
28	.0	.0	.0	1.5	.0	.5	9.5	4.5	6.5	9.5	8.0	8.5
29	---	---	---	2.0	.5	1.0	8.5	4.5	6.0	10.0	8.5	9.5
30	---	---	---	2.0	1.0	1.5	7.5	5.0	6.0	9.5	7.0	6.0
31	---	---	---	1.5	1.0	1.0	---	---	---	8.0	6.5	7.5
MONTH	.0	.0	.0	3.5	.0	.5	10.5	.5	4.0	10.0	3.5	7.0

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	8.0	6.5	7.5	---	---	---	---	---	---	16.0	10.0	12.5
2	10.0	6.5	8.0	---	---	---	18.5	---	---	15.5	10.5	13.0
3	10.5	8.5	9.5	---	---	---	18.5	10.5	14.0	13.0	11.5	12.0
4	11.0	9.0	10.0	---	---	---	18.5	10.5	14.0	13.0	10.0	11.0
5	10.5	9.0	9.5	---	---	---	19.5	12.0	15.0	15.0	7.5	11.0
6	9.0	7.5	8.5	---	---	---	18.5	10.0	13.5	15.5	9.0	12.0
7	8.0	7.0	7.5	17.0	10.0	13.0	18.5	10.0	13.5	16.5	9.5	13.0
8	10.5	7.5	9.0	16.0	9.5	12.5	18.0	10.5	13.5	16.5	10.0	13.0
9	12.0	8.5	10.0	16.5	9.5	13.0	19.0	11.0	14.0	15.0	11.0	13.0
10	11.5	9.0	10.5	15.5	11.0	12.5	19.0	11.0	14.5	13.0	9.5	11.0
11	13.0	9.5	12.0	12.0	9.5	11.0	18.0	11.0	14.5	14.0	8.5	11.0
12	13.5	10.0	12.5	---	8.5	---	19.0	11.5	14.5	14.5	8.0	11.0
13	13.0	10.0	12.0	---	---	---	17.5	11.5	14.5	14.5	8.0	11.0
14	13.0	8.5	10.0	---	---	---	15.0	13.0	13.5	14.5	7.5	11.0
15	11.0	8.0	10.0	---	---	---	16.0	11.5	13.5	15.0	7.5	11.0
16	11.5	9.0	10.5	---	---	---	18.0	10.0	13.5	16.0	9.5	12.0
17	13.5	11.0	12.0	---	---	---	17.5	10.5	14.0	15.0	8.5	11.5
18	13.5	11.0	12.5	---	---	---	17.0	12.0	14.0	15.0	8.0	11.5
19	14.5	11.0	12.5	---	---	---	16.5	12.5	15.0	15.5	8.5	11.5
20	12.0	10.5	11.0	---	---	---	19.0	12.5	15.5	15.0	9.0	12.0
21	12.5	10.0	11.5	---	---	---	18.0	12.5	15.0	15.0	9.5	12.0
22	---	---	---	---	---	---	17.0	13.0	14.5	14.0	8.0	10.5
23	---	---	---	---	---	---	18.0	11.0	14.5	14.0	7.5	10.5
24	---	---	---	---	---	---	15.5	13.0	14.0	14.0	7.5	10.5
25	---	---	---	---	---	---	17.0	11.0	13.5	13.0	7.0	10.0
26	---	---	---	---	---	---	17.0	11.0	14.0	13.5	9.0	11.5
27	---	---	---	---	---	---	16.5	11.5	14.0	14.0	8.5	11.0
28	---	---	---	---	---	---	17.5	11.0	14.0	13.0	9.0	10.5
29	---	---	---	---	---	---	18.0	10.5	14.0	12.5	6.5	9.5
30	---	---	---	---	---	---	18.0	11.5	14.5	12.5	7.0	9.0
31	---	---	---	---	---	---	14.5	12.0	13.0	---	---	---
MONTH	14.5	6.5	10.5	17.0	8.5	12.5	19.5	10.0	14.0	16.5	6.5	11.5
YEAR	19.5	.0	5.0									

12366000 WHITEFISH RIVER NEAR KALISPELL, MT

LOCATION.--Lat 48°19'13", long 114°16'39", in SW¼SE¼NW¼ sec.34, T.30 N., R.21 W., Flathead County, Hydrologic Unit 17010210, on right bank 160 ft (49 m) upstream from road bridge, 8.0 mi (12.9 km) north of Kalispell and 8.3 mi (13.4 km) upstream from mouth.

DRAINAGE AREA.--170 mi² (440 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July to November 1928, April 1929 to September 1950, annual maximum, water year 1964, October 1972 to current year. Prior to 1964, published as Whitefish Creek near Kalispell.

GAGE.--Water-stage recorder. Datum of gage is 2,969.83 ft (905.204 m) National Geodetic Vertical Datum of 1929. Prior to Oct. 16, 1930, nonrecording gage at site 200 ft (61 m) downstream at datum 10.00 ft (3.048 m) lower. Oct. 16, 1930, to Sept. 30, 1950, water-stage recorder on left bank at same datum.

REMARKS.--Water-discharge records good except those for winter period, which are poor. Some regulation by Whitefish Lake. Diversions for irrigation of about 650 acres (2.6 km²) above station.

AVERAGE DISCHARGE.--28 years (1929-50, 1972-79), 192 ft³/s (5.437 m³/s), 139,100 acre-ft/yr (172 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,580 ft³/s (44.7 m³/s) June 24, 1974, gage height, 4.91 ft (1.497 m); minimum, 4.5 ft³/s (0.13 m³/s) Oct. 18, 1934, gage height, 0.83 ft (0.253 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 863 ft³/s (24.4 m³/s) May 28, gage height, 3.55 ft (1.082 m); maximum gage height, 3.85 ft (1.173 m) Feb. 15 (backwater from ice); minimum daily discharge, 40 ft³/s (1.13 m³/s) Jan. 31.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	97	71	52	46	42	66	107	352	808	327	104	82
2	96	70	50	48	43	64	104	370	782	329	103	78
3	94	69	52	49	43	64	101	379	766	314	101	80
4	92	74	52	48	46	66	104	390	759	294	100	80
5	91	76	54	47	50	70	109	445	758	279	99	80
6	90	74	54	46	52	75	120	651	757	268	99	78
7	89	73	50	45	50	80	134	789	756	263	98	75
8	88	71	52	45	46	78	143	771	738	253	97	74
9	88	72	54	46	50	76	139	730	712	240	95	76
10	86	68	56	48	54	74	154	717	689	226	93	74
11	86	68	58	50	55	76	180	695	671	217	95	72
12	84	66	54	52	56	80	175	681	660	210	94	70
13	81	64	50	52	56	82	169	666	653	203	91	69
14	81	60	50	50	55	86	166	656	639	195	93	68
15	79	58	52	48	53	90	163	651	615	188	94	66
16	79	57	54	48	55	95	174	659	592	179	92	66
17	79	56	54	50	58	105	190	667	566	174	90	64
18	78	54	54	55	62	111	240	671	553	169	88	62
19	77	52	54	58	62	121	236	674	546	164	87	61
20	77	50	56	60	60	123	229	673	532	160	87	60
21	77	50	56	58	58	122	224	675	513	154	94	59
22	77	54	58	56	57	126	223	683	488	150	90	58
23	75	58	56	53	56	132	222	698	467	145	91	56
24	75	62	54	52	60	134	221	732	447	142	91	54
25	74	64	50	50	64	152	219	779	426	138	89	53
26	73	62	50	50	66	128	221	806	402	129	87	53
27	73	61	49	48	68	112	231	831	385	125	85	50
28	72	60	48	45	68	105	256	855	370	117	83	48
29	72	58	47	43	---	107	296	860	354	115	81	48
30	73	55	46	42	---	108	328	852	338	113	78	48
31	72	---	45	40	---	108	---	839	---	103	81	---
TOTAL	2525	1887	1621	1528	1545	3016	5578	20897	17742	6083	2850	1962
MEAN	81.5	62.9	52.3	49.3	55.2	97.3	186	674	591	196	91.9	65.4
MAX	97	76	58	60	68	152	328	860	808	329	104	82
MIN	72	50	45	40	42	64	101	352	338	103	78	48
AC-FT	5010	3740	3220	3030	3060	5980	11060	41450	35190	12070	5650	3890

CAL YR 1978 TOTAL 79845 MEAN 219 MAX 858 MIN 45 AC-FT 158400
WTR YR 1979 TOTAL 67234 MEAN 184 MAX 860 MIN 40 AC-FT 133400

12366000 WHITEFISH RIVER NEAR KALISPELL, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: August 1977 to current year.

INSTRUMENTATION.--Temperature recorder since August 8, 1977.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum, 24.5°C July 22, 1979; minimum, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum, 24.5°C July 22; minimum, 0.0°C on many days during November to March.

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	13.0	12.0	12.5	5.5	4.0	4.5	.5	.0	.5	.0	.0	.0
2	12.0	11.0	11.5	5.0	3.5	4.5	.0	.0	.0	.0	.0	.0
3	11.5	10.5	11.0	6.5	5.0	5.5	.0	.0	.0	.0	.0	.0
4	11.5	10.0	10.5	7.0	6.5	7.0	.5	.0	.5	.0	.0	.0
5	11.5	9.5	10.5	6.5	5.0	5.5	.5	.0	.0	.0	.0	.0
6	11.5	9.5	10.5	5.0	4.0	4.5	.0	.0	.0	.0	.0	.0
7	11.5	9.5	10.5	6.0	4.5	5.5	.0	.0	.0	.0	.0	.0
8	11.5	10.0	10.5	7.0	6.0	6.5	.0	.0	.0	.0	.0	.0
9	11.5	10.0	11.0	6.5	3.0	5.0	.0	.0	.0	.0	.0	.0
10	11.5	11.0	11.0	3.0	.5	1.5	.0	.0	.0	.0	.0	.0
11	11.5	10.5	11.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12	10.5	9.0	9.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
13	9.5	7.5	8.5	.5	.0	.0	.0	.0	.0	.0	.0	.0
14	8.5	7.0	8.0	.5	.0	.5	.0	.0	.0	.0	.0	.0
15	9.0	7.5	8.0	.5	.0	.5	.0	.0	.0	.0	.0	.0
16	9.5	8.0	8.5	.5	.0	.5	.0	.0	.0	.0	.0	.0
17	10.0	8.5	9.0	1.5	.5	1.0	.0	.0	.0	.0	.0	.0
18	10.0	8.5	9.0	1.0	.0	.0	.0	.0	.0	.0	.0	.0
19	9.5	8.5	9.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
20	9.5	8.0	9.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
21	9.5	9.0	9.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
22	9.0	7.5	8.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
23	8.5	7.0	7.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
24	8.5	8.0	8.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
25	8.0	7.0	7.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
26	7.5	6.0	6.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
27	7.5	6.0	6.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
28	8.5	7.0	7.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
29	8.5	7.5	8.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
30	7.5	6.5	7.0	.5	.0	.5	.0	.0	.0	.0	.0	.0
31	6.5	5.0	5.5	---	---	---	.0	.0	.0	.0	.0	.0
MONTH	13.0	5.0	9.0	7.0	.0	2.0	.5	.0	.0	.0	.0	.0

PEND OREILLE RIVER BASIN

12366000 WHITEFISH RIVER NEAR KALISPELL, MT--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	.0	.0	.0	.0	.0	.0	---	---	---	8.0	6.5	7.0
2	.0	.0	.0	.0	.0	.0	---	---	---	7.0	6.5	6.5
3	.0	.0	.0	.0	.0	.0	---	---	---	7.5	6.0	6.5
4	.0	.0	.0	.0	.0	.0	4.0	---	---	7.5	7.0	7.5
5	.0	.0	.0	.0	.0	.0	6.0	3.5	4.5	7.5	7.0	7.0
6	.0	.0	.0	.0	.0	.0	7.0	5.0	6.0	7.0	5.5	6.0
7	.0	.0	.0	.0	.0	.0	7.0	5.0	6.0	7.0	5.5	6.0
8	.0	.0	.0	.0	.0	.0	6.5	5.0	5.5	7.0	6.0	6.5
9	.0	.0	.0	.0	.0	.0	6.5	5.0	5.5	8.0	5.5	6.5
10	.0	.0	.0	.0	.0	.0	5.0	3.0	4.0	8.5	6.5	7.0
11	.0	.0	.0	.0	.0	.0	5.0	3.0	3.5	8.0	6.5	7.5
12	.0	.0	.0	.0	.0	.0	6.0	3.5	5.0	8.5	7.5	8.0
13	.0	.0	.0	.0	.0	.0	6.0	4.5	5.5	9.5	7.5	8.0
14	.0	.0	.0	.0	.0	.0	6.5	5.5	6.0	10.0	8.0	9.0
15	.0	.0	.0	.0	.0	.0	6.5	5.0	6.0	10.0	8.0	9.0
16	.0	.0	.0	.0	.0	.0	5.5	5.0	5.5	10.0	8.5	9.5
17	.0	.0	.0	1.0	.0	.5	7.0	5.5	6.0	10.0	8.0	9.0
18	.0	.0	.0	2.5	1.0	2.0	6.0	5.0	5.5	10.0	9.0	9.5
19	.0	.0	.0	3.0	2.0	2.5	5.5	4.5	5.0	10.5	9.0	9.5
20	.0	.0	.0	3.0	2.0	2.5	5.0	4.0	4.5	11.0	9.5	10.0
21	.0	.0	.0	3.5	1.5	2.5	6.0	4.0	5.0	11.5	9.5	10.5
22	.0	.0	.0	4.0	2.0	3.0	6.5	5.0	5.5	12.5	10.5	11.5
23	.0	.0	.0	4.5	2.5	3.5	5.0	4.5	5.0	13.5	11.0	12.0
24	.0	.0	.0	6.0	3.0	4.5	5.5	4.5	5.0	13.5	11.5	12.0
25	.0	.0	.0	5.0	3.0	4.0	6.0	5.0	5.5	13.0	10.5	11.5
26	.0	.0	.0	---	2.5	---	7.0	5.5	6.5	13.0	11.0	12.0
27	.0	.0	.0	---	---	---	8.0	6.5	7.5	13.0	11.5	12.5
28	.0	.0	.0	---	---	---	8.5	7.5	8.0	12.5	11.5	12.0
29	---	---	---	---	---	---	8.5	7.0	7.5	12.0	11.0	11.5
30	---	---	---	---	---	---	9.0	7.0	8.0	12.5	11.0	12.0
31	---	---	---	---	---	---	---	---	---	13.0	11.0	12.0
MONTH	.0	.0	.0	6.0	.0	1.0	9.0	3.0	5.5	13.5	5.5	9.0

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	14.0	11.5	13.0	18.0	16.5	17.0	23.5	20.5	22.0	19.5	18.0	18.5
2	14.5	12.0	13.5	16.5	15.5	16.0	22.5	20.5	21.5	20.0	17.5	18.5
3	15.0	12.5	14.0	16.0	15.0	15.5	23.0	20.0	21.5	20.0	18.5	19.0
4	15.5	14.5	15.0	19.0	17.5	18.5	22.5	20.0	21.5	19.0	17.5	18.0
5	14.5	14.0	14.0	20.0	19.0	19.5	22.5	20.0	21.5	17.5	15.5	16.5
6	14.0	13.0	13.0	20.5	19.5	20.0	22.0	19.5	21.0	18.5	16.0	17.0
7	13.5	12.0	12.5	21.0	19.5	20.5	22.0	19.5	21.0	19.5	17.0	18.5
8	14.0	12.5	13.0	20.5	19.5	20.0	22.5	20.0	21.0	20.0	18.0	19.0
9	14.5	12.5	13.5	20.5	19.0	20.0	22.5	20.0	21.5	20.0	18.5	19.0
10	14.5	12.0	13.5	21.0	19.5	20.5	23.0	20.5	21.5	19.0	17.0	17.5
11	16.0	14.0	15.0	19.5	17.5	18.5	22.5	20.5	21.5	17.0	15.5	16.5
12	16.0	14.5	15.5	18.5	17.5	18.0	22.0	20.5	21.5	17.0	15.0	16.0
13	16.0	14.5	15.5	19.0	18.0	18.5	21.5	20.0	21.0	17.0	15.0	16.0
14	15.5	13.0	14.5	20.0	18.0	19.0	21.0	20.0	20.5	17.0	15.0	16.0
15	15.0	14.0	14.5	20.0	19.0	19.5	20.5	19.0	19.5	17.0	15.0	16.0
16	16.0	14.5	15.0	21.0	19.0	20.0	21.0	18.5	19.5	17.5	16.0	16.5
17	16.0	14.5	15.0	22.0	20.0	21.0	21.5	19.0	20.0	17.5	16.0	17.0
18	15.5	13.5	14.5	23.0	21.0	22.0	22.5	20.0	21.0	17.5	16.0	16.5
19	15.5	13.5	14.0	23.0	21.5	22.0	22.5	20.5	21.5	17.0	16.0	16.5
20	15.0	13.5	14.0	23.5	21.5	22.5	22.5	21.0	21.5	17.5	16.0	16.5
21	16.0	14.0	15.0	24.0	21.5	22.5	22.0	20.5	21.0	17.5	16.0	16.5
22	16.5	14.5	15.5	24.5	22.0	23.0	22.0	20.5	21.0	17.0	15.5	16.0
23	16.5	15.0	16.0	23.5	21.5	22.5	22.0	19.5	21.0	16.0	14.5	15.5
24	16.5	15.0	16.0	22.5	20.5	21.5	21.5	20.0	20.5	15.5	14.5	15.0
25	17.0	15.5	16.5	21.5	19.5	20.5	21.0	19.0	20.0	15.5	14.5	15.0
26	18.0	17.0	17.5	22.0	19.5	20.5	21.0	18.5	20.0	15.5	15.0	15.5
27	18.5	17.5	17.5	23.0	20.5	21.5	21.0	19.5	20.5	16.0	15.0	15.5
28	18.5	17.5	18.0	22.5	21.0	21.5	21.0	19.5	20.0	16.0	15.0	15.5
29	19.0	18.0	18.5	22.5	20.0	21.5	21.5	19.0	20.0	15.0	13.5	14.5
30	19.5	18.0	19.0	23.5	20.5	22.0	21.5	19.5	20.5	14.5	13.5	13.5
31	---	---	---	23.0	20.5	22.0	21.5	19.5	20.0	---	---	---
MONTH	19.5	11.5	15.0	24.5	15.0	20.0	23.5	18.5	21.0	20.0	13.5	16.5
YEAR	24.5	.0	8.5									

12369200 SWAN RIVER NEAR CONDON, MT

LOCATION.--Lat 47°25'21", long 113°40'12", near center of NW¼ sec.8, T.19 N., R.16 W., Missoula County, Hydrologic Unit 17010211, Flathead National Forest, on right bank 25 ft (7.6 m) downstream from road bridge, 0.5 mi (0.8 km) downstream from Beaver Creek, 4.0 mi (6.4 km) downstream from Lindberg Lake, 8.1 mi (13.0 km) southeast of Condon, and at mile 66.5 (107.0 km).

DRAINAGE AREA.--73.3 mi² (189.8 km²).

PERIOD OF RECORD.--October 1972 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 4,015 ft (1,224 m), by barometer.

REMARKS.--Records good except those for winter period, which are poor. Several observations of water temperature were made during the year and are available in files of Helena district office.

AVERAGE DISCHARGE.--7 years, 164 ft³/s (4.644 m³/s), 30.38 in/yr (772 mm/yr), 118,800 acre-ft/yr (146 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,540 ft³/s (43.6 m³/s) June 18, 1974, gage height, 4.88 ft (1.487 m); minimum daily, 22 ft³/s (0.62 m³/s) Dec. 8, 1972; minimum gage height, 1.37 ft (0.418 m) Apr. 11, 1975.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 960 ft³/s (27.2 m³/s) May 27, gage height, 4.10 ft (1.250 m); minimum daily, 23 ft³/s (0.65 m³/s) Jan. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	53	40	45	23	30	37	64	448	453	362	112	90
2	52	40	40	25	29	36	61	470	448	338	107	94
3	49	41	42	27	30	36	58	459	501	307	103	98
4	47	49	45	29	32	35	59	472	573	281	99	99
5	46	51	43	27	33	35	61	566	618	268	96	97
6	45	47	41	25	34	41	67	825	655	259	92	94
7	45	46	39	26	35	49	67	735	587	258	88	89
8	45	51	38	27	33	58	95	581	501	258	85	85
9	45	57	41	28	34	59	114	476	427	255	82	80
10	42	50	43	29	36	56	126	396	397	247	79	76
11	42	46	45	31	37	55	122	350	407	236	77	71
12	44	43	47	33	36	53	118	342	459	227	76	67
13	42	43	44	34	38	53	118	342	521	214	74	63
14	41	42	38	33	39	53	114	372	557	199	73	60
15	41	40	40	31	37	55	110	429	532	186	76	57
16	41	39	39	29	36	56	116	576	488	176	77	54
17	40	44	40	28	37	58	147	680	456	168	74	52
18	41	48	41	29	39	56	155	638	429	161	72	49
19	40	46	40	30	39	58	185	592	409	158	74	47
20	40	43	41	33	38	56	180	574	401	158	76	45
21	41	42	42	37	37	56	175	569	393	160	77	44
22	41	45	44	35	36	55	177	635	383	158	79	43
23	40	47	45	34	34	56	180	728	379	157	75	41
24	40	48	49	35	35	59	172	933	375	152	74	40
25	40	47	[illegible]	34	36	64	170	909	376	147	72	39
26	40	47	40	31	37	62	184	895	365	141	70	38
27	40	46	35	33	37	65	220	937	396	135	68	37
28	40	48	31	31	37	74	270	860	404	131	66	36
29	41	47	27	29	---	68	322	701	398	132	64	35
30	42	48	25	27	---	65	375	568	382	125	62	34
31	41	---	24	28	---	65	---	493	---	119	85	---
TOTAL	1327	1371	1239	931	993	1686	4432	18551	13690	6273	2484	1854
MEAN	42.8	45.7	40.0	30.0	35.5	54.4	148	598	456	202	80.1	61.8
MAX	53	57	49	37	39	74	375	937	655	362	112	99
MIN	40	39	24	23	29	35	58	342	375	119	62	34
CFSM	.58	.62	.55	.41	.48	.74	2.02	8.16	6.22	2.76	1.09	.84
IN.	.67	.70	.63	.47	.50	.86	2.25	9.41	6.95	3.18	1.26	.94
AC-FT	2630	2720	2460	1850	1970	3340	8790	36800	27150	12440	4930	3680

CAL YR 1978 TOTAL 68474 MEAN 188 MAX 809 MIN 24 CFSM 2.57 IN 34.75 AC-FT 135800
WTR YR 1979 TOTAL 54831 MEAN 150 MAX 937 MIN 23 CFSM 2.05 IN 27.83 AC-FT 108800

12370000 SWAN RIVER NEAR BIGFORK, MT

LOCATION.--Lat 48°01'28", long 113°58'44", near center of S½SW¼ sec.11, T.26 N., R.19 W., Lake County, Hydrologic Unit 17010211, on left bank 0.2 mi (0.3 km) downstream from Johnson Creek, 0.4 mi (0.6 km) downstream from Swan Lake, 5.1 mi (8.2 km) southeast of Bigfork, and at mile 14.0 (22.5 km).

DRAINAGE AREA.--671 mi^2 (1,738 km^2).

PERIOD OF RECORD.--October 1910 to May 1911 (gage heights only), April 1922 to current year. Monthly discharge only for some periods, published in WSP 1316.

REVISED RECORDS.--WSP 1216: Drainage area. WSP 1246: 1923-24(M), 1930. WSP 1316: 1923.

GAGE.--Water-stage recorder. Datum of gage is 3,062.6 ft (933.48 m) National Geodetic Vertical Datum of 1929 (from river-profile survey). Oct. 10, 1910, to May 22, 1911, nonrecording gage at site 10 mi (16 km) upstream at different datum. Apr. 28, 1922, to Oct. 14, 1930, nonrecording gage at site 800 ft (240 m) upstream at datum 1.9 ft (0.58 m) higher.

REMARKS.--Records excellent. Diversions for irrigation of about 360 acres (1.46 km^2) above station. Several observations of water temperature were made during the year and are available in files of Helena district office.

AVERAGE DISCHARGE.--57 years, 1,166 ft^3/s (33.02 m^3/s), 23.60 in/yr (599 mm/yr), 844,800 acre-ft/yr (1.04 km^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,890 ft^3/s (252 m^3/s) June 20, 1974, gage height, 7.34 ft (2.237 m); minimum observed, 193 ft^3/s (5.47 m^3/s) Jan. 26-29, 1930, gage height, 0.04 ft (0.012 m), site and datum then in use.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,840 ft^3/s (165 m^3/s) May 28, gage height, 5.95 ft (1.814 m); minimum daily, 370 ft^3/s (10.5 m^3/s) Jan. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	694	520	513	370	409	507	858	2320	3830	2430	832	686
2	682	505	498	390	414	495	812	2520	3450	2340	806	709
3	676	520	484	380	421	488	785	2610	3310	2190	761	701
4	652	527	484	385	422	475	759	2690	3490	2040	765	734
5	644	534	491	390	423	472	750	2910	3840	1920	742	725
6	643	534	484	395	428	495	767	3590	4250	1840	726	693
7	629	527	477	395	435	517	884	4420	4440	1780	709	678
8	621	527	457	400	438	547	1080	4550	4230	1730	690	645
9	613	547	463	400	426	590	1280	4160	3780	1690	677	645
10	590	540	470	404	437	621	1540	3640	3370	1640	668	645
11	583	513	491	415	457	637	1730	3160	3120	1590	654	621
12	576	491	498	423	492	637	1770	2810	3130	1530	635	613
13	568	484	491	434	556	662	1750	2590	3370	1430	633	590
14	568	484	470	438	609	678	1700	2500	3730	1370	611	583
15	561	484	470	443	662	686	1640	2530	3870	1310	607	568
16	554	484	484	445	631	693	1590	2700	3730	1240	606	547
17	554	484	470	443	630	717	1620	3090	3480	1190	605	534
18	554	498	463	440	628	750	1790	3470	3290	1150	610	520
19	547	534	477	443	617	794	1990	3580	3200	1120	599	513
20	540	484	477	440	610	821	2020	3600	3130	1090	604	513
21	540	463	477	470	592	821	1960	3560	3030	1060	615	505
22	540	463	484	481	576	849	1860	3610	2910	1040	639	484
23	547	463	477	471	561	884	1830	3850	2820	1020	649	477
24	540	477	477	469	541	912	1740	4290	2750	991	634	470
25	534	477	477	461	531	939	1700	4970	2670	967	641	463
26	527	484	470	454	524	967	1650	5470	2620	947	631	457
27	520	484	470	446	521	1010	1680	5640	2610	927	625	463
28	520	498	450	441	517	987	1730	5790	2590	908	618	450
29	520	491	438	431	---	958	1860	5630	2570	890	605	450
30	527	498	410	419	---	930	2060	5070	2480	875	590	444
31	527	---	390	408	---	893	---	4390	---	863	645	---
TOTAL	17891	15019	14632	13224	14508	22452	45245	115690	99140	43108	20456	17126
MEAN	577	501	472	427	518	724	1508	3732	3305	1391	660	571
MAX	694	547	513	481	662	1010	2060	5790	4440	2430	832	734
MIN	520	463	390	370	409	472	750	2320	2480	863	590	444
CFSM	.86	.75	.70	.64	.77	1.08	2.25	5.56	4.93	2.07	.98	.85
IN.	.99	.83	.81	.73	.80	1.24	2.51	6.41	5.50	2.39	1.13	.95
AC-FT	35490	29790	29020	26230	28780	44530	89740	224500	196600	85500	40570	33970

CAL YR 1978 TOTAL 519789 MEAN 1424 MAX 5250 MIN 390 CFSM 2.12 IN 28.82 AC-FT 1031000
WTR YR 1979 TOTAL 438491 MEAN 1201 MAX 5790 MIN 370 CFSM 1.79 IN 24.31 AC-FT 869700

12371500 FLATHEAD LAKE AT SOMERS, MT

LOCATION.--Lat 48°04'22", long 114°13'30", in NE¼NE¼SE¼ sec.26, T.27 N., R.21 W., Flathead County, Hydrologic Unit 17010208, at steamboat dock at Somers.

DRAINAGE AREA.--7,086 mi² (18,353 km²).

PERIOD OF RECORD.--April to August 1900, daily lake elevations only, at site near Holt, 6 mi (10 km) east of Somers (datum unknown). August 1908 to November 1909 (fragmentary), January 1910 to current year. Monthend contents only for some periods, published in WSP 1316. Prior to April 1923, published as "at Polson." Oct. 1, 1941, to current year, unpublished daily lake elevations at Polson are available in files of Helena district office.

GAGE.--Water-stage recorder. Datum of gage is at Somers datum. Subtract 1.00 ft (0.305 m) to convert Somers datum to National Geodetic Vertical Datum of 1929, supplementary adjustment of 1947. July 1 to Dec. 12, 1923, nonrecording gage at same site and datum.

REMARKS.--Natural storage in Flathead Lake increased by construction of Kerr Dam 4 mi (6 km) downstream from natural lake outlet; storage began Apr. 11, 1938. Usable capacity, 1,791,000 acre-ft (2.21 km³) at controlled spillway elevation 2,893.00 ft (881.786 m). Dead storage unknown below 2,878 ft (877.2 m). elevation of natural outlet. Minimum operating level, 572,300 acre-ft (706 hm³) elevation, 2,883.00 ft (878.738 m), for on-site power generation. Water is used for power production, flood control, recreation, and irrigation. Figures given herein represent usable contents.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 2,208,000 acre-ft (2.72 km³) June 19, 1933, elevation, 2,896.26 ft (882.780 m); minimum, 347,000 acre-ft (428 hm³) Dec. 5, 1936, elevation, 2,881.07 ft (878.150 m).

EXTREMES OUTSIDE PERIOD OF RECORD.--Lake reached an elevation of 2,900 ft (883.9 m) during flood in June 1894.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 1,802,000 acre-ft (2.22 km³) July 12, elevation, 2,893.09 ft (881.814 m); minimum, 590,100 acre-ft (728 hm³) Mar. 5,, elevation, 2,883.15 ft (878.784 m).

Capacity table (elevation, in feet and contents, in acre-ft)

2,883	572,300	2,888	1,172,000
2,884	690,700	2,890	1,417,000
2,886	930,300	2,892	1,665,000
		2,894	1,917,000

ELEVATION, IN FEET, AT 2400, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
INSTANTANEOUS OBSERVATION AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2892.32	2890.26	2889.28	2887.83	2885.22	2883.20	2883.66	2884.53	2891.02	2892.95	2892.68	2892.93
2	2892.25	2890.23	2889.28	2887.76	2885.10	2883.18	2883.64	2884.85	2891.13	2893.00	2892.67	2892.85
3	2892.20	2890.23	2889.27	2887.75	2885.00	2883.18	2883.54	2885.04	2891.19	2893.00	2892.65	2892.83
4	2892.15	2890.19	2889.25	2887.67	2884.88	2883.17	2883.54	2885.24	2891.36	2892.93	2892.66	2892.78
5	2892.11	2890.13	2889.23	2887.66	2884.69	2883.18	2883.53	2885.52	2891.55	2892.92	2892.66	2892.76
6	2892.05	2890.10	2889.19	2887.62	2884.56	2883.23	2883.47	2885.79	2891.83	2892.99	2892.65	2892.77
7	2892.00	2890.15	2889.18	2887.57	2884.47	2883.27	2883.48	2886.08	2892.06	2893.05	2892.64	2892.80
8	2891.92	2890.13	2889.16	2887.46	2884.36	2883.30	2883.47	2886.43	2892.29	2893.02	2892.65	2892.79
9	2891.87	2890.07	2889.13	2887.40	2884.27	2883.30	2883.47	2886.75	2892.43	2893.00	2892.66	2892.73
10	2891.82	2890.04	2889.10	2887.35	2884.19	2883.28	2883.52	2886.96	2892.55	2893.05	2892.67	2892.68
11	2891.70	2890.03	2889.10	2887.27	2884.11	2883.28	2883.57	2887.10	2892.68	2893.08	2892.68	2892.67
12	2891.62	2890.02	2889.07	2887.13	2884.06	2883.29	2883.55	2887.17	2892.83	2893.05	2892.63	2892.68
13	2891.57	2890.02	2889.04	2886.98	2884.04	2883.37	2883.60	2887.26	2892.95	2893.05	2892.65	2892.70
14	2891.51	2890.02	2889.02	2886.85	2883.92	2883.43	2883.69	2887.33	2892.95	2893.04	2892.66	2892.74
15	2891.42	2890.02	2888.99	2886.73	2883.80	2883.47	2883.70	2887.46	2892.93	2892.87	2892.67	2892.70
16	2891.33	2889.96	2888.94	2886.58	2883.73	2883.51	2883.76	2887.63	2892.84	2892.86	2892.72	2892.63
17	2891.27	2889.82	2888.90	2886.42	2883.69	2883.53	2883.85	2887.88	2892.79	2892.85	2892.75	2892.55
18	2891.22	2889.69	2888.80	2886.28	2883.63	2883.52	2883.94	2888.12	2892.83	2892.83	2892.77	2892.53
19	2891.15	2889.66	2888.78	2886.18	2883.56	2883.52	2884.04	2888.26	2892.96	2892.77	2892.76	2892.50
20	2891.05	2889.63	2888.77	2886.05	2883.52	2883.54	2884.12	2888.39	2892.99	2892.73	2892.76	2892.47
21	2890.89	2889.60	2888.70	2885.95	2883.50	2883.62	2884.17	2888.49	2892.95	2892.79	2892.83	2892.43
22	2890.74	2889.60	2888.63	2885.84	2883.44	2883.60	2884.16	2888.65	2892.90	2892.82	2892.86	2892.37
23	2890.68	2889.60	2888.50	2885.76	2883.38	2883.62	2884.17	2888.89	2892.88	2892.77	2892.90	2892.33
24	2890.60	2889.46	2888.33	2885.67	2883.37	2883.75	2884.21	2889.25	2892.78	2892.68	2892.94	2892.27
25	2890.55	2889.37	2888.15	2885.58	2883.32	2883.67	2884.23	2889.56	2892.70	2892.68	2892.90	2892.25
26	2890.53	2889.35	2888.00	2885.56	2883.29	2883.68	2884.21	2889.93	2892.58	2892.68	2892.90	2892.24
27	2890.53	2889.35	2887.90	2885.57	2883.24	2883.72	2884.19	2890.21	2892.60	2892.68	2892.94	2892.18
28	2890.52	2889.33	2887.88	2885.49	2883.23	2883.68	2884.23	2890.51	2892.69	2892.73	2892.92	2892.12
29	2890.43	2889.30	2887.87	2885.46	---	2883.68	2884.29	2890.68	2892.82	2892.70	2892.88	2892.08
30	2890.37	2889.28	2887.85	2885.47	---	2883.68	2884.40	2890.77	2892.91	2892.65	2892.93	2892.03
31	2890.30	---	2887.83	2885.35	---	2883.74	---	2890.89	---	2892.67	2893.03	---
MAX	2892.32	2890.26	2889.28	2887.83	2885.22	2883.75	2884.40	2890.89	2892.99	2893.08	2893.03	2892.93
MIN	2890.30	2889.28	2887.83	2885.35	2883.23	2883.17	2883.47	2884.53	2891.02	2892.65	2892.63	2892.03
(†)	1,454	1,328	1,151	852.2	599.5	659.9	738.5	1,527	1,780	1,749	1,795	1,669
(††)	-258,000	-126,000	-177,000	-298,800	-252,700	+60,400	+78,600	+778,500	+253,000	-31,000	+46,000	-126,000

CAL YR 1978 . . . . †† -54,000
WTR YR 1979 . . . . †† -43,000

† Contents, in thousands of acre-feet, at end of month
†† Change in contents, in acre-feet

12372000 FLATHEAD RIVER NEAR POLSON, MT

LOCATION.--Lat 47°40'49", long 114°14'45", in SW¼NE¼SE¼ sec. 11, T.22 N., R.21 W., Lake County, Hydrologic Unit 17010212, on left bank 0.5 mi (0.8 km) downstream from Kerr Dam, 4.0 mi (6.4 km) west of Polson, 5.0 mi (8.0 km) downstream from Flathead Lake, and at mile 71.5 (115.0 km).
DRAINAGE AREA.--7,096 mi^2 (18,379 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1907 to current year.
REVISED RECORDS.--WSP 652: 1926. WSP 752: 1932. WSP 1182: 1948. WSP 1216: Drainage area. WSP 1246: 1928(M). WSP 1636: 1958 (adjusted runoff).
GAGE.--Water-stage recorder. Datum of gage is 2,692.70 ft (820.735 m) National Geodetic Vertical Datum of 1929 (levels by The Montana Power Co.). Prior to Oct. 1, 1941, nonrecording gages or water-stage recorder at several sites near highway bridge at old site of Michell's ferry 6 mi (10 km) downstream from present site, all at datum 2,629.20 ft (801.380 m) National Geodetic Vertical Datum of 1929 (from river-profile study).
REMARKS.--Water-discharge records excellent. Flow regulated by Flathead Lake (Kerr Dam) since April 1938 (see p. 751) and Hungry Horse Reservoir since September 1951 (see p. 728). Diversions above station for irrigation of about 10,000 acres (40 km^2). Flathead project pumps can divert up to 12,000 acre-ft (15 hm^3) per month when required for irrigation of lands downstream from station.
AVERAGE DISCHARGE.--72 years, 11,740 ft^3/s (332.5 m^3/s), 22.47 in/yr (571 mm/yr), 8,506,000 acre-ft/yr (10.5 km^3/yr), adjusted for change in contents in Hungry Horse Reservoir and Flathead Lake.
EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 82,800 ft^3/s (2,340 m^3/s) May 29, 1928, gage height, 17.2 ft (5.24 m), site and datum then in use; minimum probably less than 5.0 ft^3/s (0.14 m^3/s) Apr. 13, 1938; minimum daily, 32 ft^3/s (0.91 m^3/s) Apr. 12, 1938.
EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1894 reached a stage of about [illegible] (6.4 m), present datum; discharge, about 110,000 ft^3/s (3,120 m^3/s), from lake elevation-discharge study.
EXTREMES FOR CURRENT YEAR.--Maximum discharge, 36,300 ft^3/s (1,030 m^3/s) May 29, gage height, 13.27 ft (4.045 m); minimum daily, 1,990 ft^3/s (56.4 m^3/s) Mar. 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7110	11700	12200	11700	12200	4010	5930	8480	23500	11700	8590	9060
2	7180	11300	12200	11900	11100	2890	6240	9090	20000	11900	9590	8870
3	6900	11500	12300	12200	10600	2510	6390	9740	20100	15700	8570	6410
4	7500	12300	12100	12400	10500	2720	5400	10600	19700	19500	5840	5870
5	7450	11800	12300	12100	9800	1990	5670	11100	20600	15600	7590	7910
6	8330	11700	12700	11900	9630	2000	5840	11900	20500	13200	7670	8520
7	7240	11300	12800	12100	8380	2320	5500	12000	18300	12400	7900	7260
8	7440	11600	12800	12200	8770	2710	5830	11800	13800	12400	7270	8000
9	7580	12600	12600	11900	7900	3660	6050	12000	15400	13500	7340	7600
10	7690	12000	12900	12400	8410	3570	5240	14300	15500	12900	7400	7350
11	7870	11800	12100	12500	7410	4090	6140	18500	15800	12500	6220	7280
12	7710	12000	12700	12500	7430	3770	5730	19400	15600	12700	6270	7950
13	7470	11600	12900	12800	6770	3320	5840	20000	21500	13000	6670	7850
14	7760	11200	12000	12600	7210	4550	6240	19400	29000	12400	6620	6000
15	9280	11300	12500	12300	6160	4890	6500	20300	29800	21100	7610	7670
16	8710	11100	12800	12100	6250	4870	6380	20400	27400	11500	5450	7510
17	6930	11800	12700	12300	5860	5080	6530	21000	25100	11200	6640	7390
18	6830	12500	12400	12100	5900	4780	6440	22300	21200	11300	7450	7680
19	8280	12500	12400	11700	6100	5850	6950	23600	19600	11300	8080	6840
20	11000	12100	12300	11700	5720	5880	7270	24300	22700	11700	7380	5150
21	11300	12700	12700	10500	5600	5560	7180	24400	29700	8540	7760	4410
22	11900	11600	11600	11700	6010	5800	7360	24700	29600	8360	6790	4760
23	11500	11700	12600	10500	5620	5780	7460	25300	26800	8310	6870	4680
24	11400	11800	12300	11800	4400	6010	7260	25900	26300	8440	7280	5220
25	12300	12000	12600	12000	5000	5620	7610	27300	26300	7240	7980	3900
26	11300	12500	12200	11800	4960	5930	7860	27500	22600	9340	9660	4230
27	11000	12400	12700	11600	5200	5990	7210	29200	14700	8080	9300	4030
28	11500	12000	12500	11700	4060	6560	7610	30300	11600	8050	8660	4640
29	12000	12500	12200	11500	---	6200	7710	32800	11200	7510	9340	3660
30	12100	12400	11600	11100	---	6680	8140	31400	11700	9290	7750	4030
31	12200	---	12300	12000	---	6180	---	26300	---	8850	8560	---
TOTAL	284760	357300	385000	369600	202970	141770	197510	625510	625600	359510	236300	191730
MEAN	9186	11910	12420	11920	7249	4573	6584	20180	20850	11600	7623	6391
MAX	12300	12700	12900	12800	12200	6680	8140	32800	29800	21100	9660	9060
MIN	6830	11100	11600	10500	4060	1990	5240	8480	11200	7240	5450	3660
AC-FT	564800	708700	763600	733100	402600	281200	391800	1241000	1241000	713100	468700	380300
+	-366,000	-536,000	-621,000	-561,800	-231,700	+11,400	+176,600	+1,430,500	+751,000	-126,000	-262,000	-234,000
MEAN ‡	3,233	2,902	2,319	2,786	3,077	4,759	9,552	43,450	33,480	9,548	3,362	2,459
CFSM ‡	.46	.41	.33	.39	.43	.67	1.35	6.12	4.72	1.35	.47	.35
IN ‡	.53	.46	.38	.45	.45	.77	1.50	7.06	5.26	1.55	.55	.39
AC-FT‡	198,800	172,700	142,600	171,300	170,900	292,600	568,400	2,671,500	1,992,000	587,100	206,700	146,300

OBSERVED

CAL YR 1978	TOTAL	4,164,830	MEAN	11,410	MAX	30,800	MIN	3,360	AC-FT	8,261,000	(+)	+450,000
WTR YR 1979	TOTAL	3,977,560	MEAN	10,900	MAX	32,800	MIN	1,990	AC-FT	7,890,000	(+)	-569,000

ADJUSTED

CAL YR 1978	TOTAL	4,391,883	MEAN	12,030	CFSM	1.70	IN	23.02	AC-FT	8,711,000
WTR YR 1979	TOTAL	3,690,900	MEAN	10,110	CFSM	1.42	IN	19.34	AC-FT	7,321,000

+Change in contents, in acre-ft, in Hungry Horse Reservoir and Flathead Lake.
‡Adjusted for change in contents.

12372000 FLATHEAD RIVER NEAR POLSON, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: June 1977 to current year.

INSTRUMENTATION.--Temperature recorder since June 27, 1977.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum, 23.0°C Aug. 8-12, 1978; minimum, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum, 22.5°C on several days during August; minimum, 0.0°C on several days during December to January.

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	13.5	13.5	13.5	9.0	8.5	8.5	3.0	3.0	3.0	.0	.0	.0
2	13.5	13.5	13.5	8.5	8.5	8.5	3.0	3.0	3.0	.5	.0	.5
3	13.5	13.0	13.5	8.5	8.5	8.5	3.0	3.0	3.0	.5	.5	.5
4	13.5	13.0	13.0	8.5	8.5	8.5	3.0	3.0	3.0	.5	.5	.5
5	13.5	13.0	13.0	8.5	8.0	8.0	3.0	2.0	2.5	1.0	1.0	1.0
6	13.0	13.0	13.0	8.0	7.5	7.5	2.0	1.5	1.5	1.0	1.0	1.0
7	13.0	13.0	13.0	7.5	7.5	7.5	1.5	1.5	1.5	1.0	.5	.5
8	13.0	13.0	13.0	7.5	7.5	7.5	1.5	1.5	1.5	.5	.5	.5
9	13.0	13.0	13.0	7.5	6.5	7.0	1.5	1.0	1.5	.5	.5	.5
10	13.0	13.0	13.0	6.5	4.5	5.5	1.0	.5	1.0	.5	.5	.5
11	13.0	12.5	13.0	4.5	3.0	4.0	1.0	.5	.5	.5	.5	.5
12	12.5	12.0	12.5	3.0	3.0	3.0	1.0	1.0	1.0	1.0	.5	.5
13	12.0	12.0	12.0	3.0	2.5	2.5	1.0	1.0	1.0	.5	.5	.5
14	12.0	11.5	12.0	2.5	2.5	2.5	1.0	.5	1.0	.5	.5	.5
15	12.0	11.5	11.5	2.5	2.5	2.5	1.0	1.0	1.0	.5	.5	.5
16	12.0	11.5	11.5	3.0	2.5	2.5	1.0	1.0	1.0	.5	.5	.5
17	12.0	11.5	11.5	3.0	3.0	3.0	1.0	.5	.5	.5	.5	.5
18	12.0	11.5	11.5	3.5	2.5	3.0	.5	.5	.5	.5	.5	.5
19	11.5	11.5	11.5	2.5	1.5	2.0	1.0	1.0	1.0	1.0	.5	.5
20	11.5	11.5	11.5	1.5	1.0	1.5	1.5	1.0	1.0	1.0	.5	1.0
21	11.5	11.5	11.5	1.0	1.0	1.0	1.5	1.0	1.0	1.0	1.0	1.0
22	11.5	11.0	11.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	.5	.5
23	11.0	11.0	11.0	1.0	.5	1.0	1.0	1.0	1.0	1.0	.5	.5
24	11.0	10.5	11.0	1.0	.5	1.0	1.5	1.0	1.0	1.0	.5	.5
25	10.5	10.0	10.5	1.0	1.0	1.0	1.5	1.0	1.5	1.0	.5	.5
26	10.0	10.0	10.0	1.5	1.0	1.5	1.5	1.0	1.5	.5	.5	.5
27	10.0	10.0	10.0	2.5	2.0	2.0	1.5	1.0	1.5	.5	.5	.5
28	10.0	10.0	10.0	3.0	2.5	2.5	1.0	.0	.5	.5	.5	.5
29	10.0	10.0	10.0	3.0	2.5	3.0	.0	.0	.0	.5	.5	.5
30	10.0	9.0	9.5	3.0	2.5	3.0	.0	.0	.0	.5	.5	.5
31	9.0	9.0	9.0	---	---	---	.0	.0	.0	.5	.5	.5
MONTH	13.5	9.0	11.5	9.0	.5	4.0	3.0	.0	1.5	1.0	.0	.5

12372000 FLATHEAD RIVER NEAR POLSON, MT--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	.5	.5	.5	1.5	1.5	1.5	3.0	2.5	2.5	10.0	9.5	10.0
2	.5	.5	.5	1.5	1.5	1.5	3.0	2.5	3.0	9.5	9.5	9.5
3	.5	.5	.5	1.5	1.5	1.5	3.5	3.0	3.0	10.0	9.5	10.0
4	.5	.5	.5	2.0	1.5	1.5	3.5	3.0	3.0	10.0	9.5	10.0
5	.5	.5	.5	2.5	2.0	2.0	3.5	3.0	3.5	9.5	8.0	8.5
6	1.0	.5	.5	2.5	2.0	2.5	4.0	3.0	3.5	8.0	6.5	7.0
7	1.0	.5	.5	3.0	2.5	2.5	4.5	4.0	4.0	6.5	6.0	6.0
8	.5	.5	.5	3.0	2.5	3.0	5.0	4.5	4.5	7.5	6.0	7.0
9	.5	.5	.5	3.0	3.0	3.0	5.5	4.5	5.0	7.5	7.0	7.0
10	1.0	.5	1.0	3.0	3.0	3.0	5.5	5.0	5.5	8.0	7.5	8.0
11	1.0	1.0	1.0	3.5	3.0	3.5	5.0	4.5	5.0	8.0	7.5	8.0
12	1.0	1.0	1.0	4.0	3.5	4.0	5.5	4.5	5.0	8.0	7.0	7.5
13	1.0	1.0	1.0	4.5	4.0	4.5	6.0	5.5	6.0	7.5	7.0	7.0
14	1.0	1.0	1.0	4.5	4.0	4.5	5.5	5.0	5.5	8.5	7.5	7.5
15	1.0	1.0	1.0	4.0	3.5	4.0	6.0	5.0	5.5	9.5	8.5	9.0
16	1.0	1.0	1.0	4.5	4.0	4.5	6.0	5.5	5.5	10.0	9.0	9.5
17	1.5	1.0	1.0	4.5	4.5	4.5	6.5	5.5	6.0	9.5	8.5	9.0
18	1.5	1.0	1.5	4.5	4.5	4.5	6.5	6.0	6.5	9.5	8.5	9.0
19	1.5	1.5	1.5	4.5	4.0	4.5	7.0	6.5	7.0	8.5	8.0	8.0
20	1.5	1.5	1.5	4.0	3.5	3.5	7.0	6.5	6.5	10.0	8.5	9.0
21	1.5	1.5	1.5	3.5	3.0	3.0	6.5	6.0	6.5	10.0	9.5	9.5
22	1.5	1.0	1.5	3.5	3.0	3.0	7.0	6.5	6.5	10.5	9.0	9.5
23	1.5	1.0	1.0	3.0	3.0	3.0	6.5	6.5	6.5	11.0	9.5	10.0
24	1.5	1.0	1.5	4.5	3.0	3.5	7.5	6.5	7.0	11.0	10.5	10.5
25	1.5	1.0	1.5	5.0	4.5	5.0	7.5	7.0	7.5	11.5	10.5	11.0
26	1.5	1.5	1.5	5.0	4.5	5.0	7.5	7.0	7.5	11.5	11.0	11.0
27	1.5	1.5	1.5	4.5	3.5	4.0	8.5	7.5	8.0	11.5	10.0	10.5
28	1.5	1.5	1.5	3.5	1.5	2.5	9.0	8.0	9.0	10.5	9.5	10.0
29	---	---	---	1.5	1.0	1.5	10.0	9.0	9.5	9.5	9.0	9.5
30	---	---	---	1.5	1.0	1.5	10.0	10.0	10.0	10.0	9.5	10.0
31	---	---	---	2.5	1.5	2.0	---	---	---	10.0	9.5	10.0
MONTH	1.5	.5	1.0	5.0	1.0	3.0	10.0	2.5	6.0	11.5	6.0	9.0
		JUNE			JULY			AUGUST			SEPTEMBER	
1	10.5	9.5	10.0	18.0	17.5	17.5	22.0	22.0	22.0	20.5	20.0	20.0
2	11.0	10.5	10.5	17.5	16.5	17.0	22.0	22.0	22.0	20.0	19.5	20.0
3	12.0	11.0	11.5	17.0	16.5	16.5	22.0	22.0	22.0	20.0	20.0	20.0
4	12.5	12.0	12.0	16.5	16.0	16.5	22.0	22.0	22.0	20.0	19.5	19.5
5	12.5	11.5	12.0	16.5	16.5	16.5	22.0	22.0	22.0	19.5	19.0	19.5
6	11.5	11.0	11.0	17.0	16.5	17.0	22.0	21.5	22.0	19.0	19.0	19.0
7	11.0	11.0	11.0	17.0	17.0	17.0	22.0	21.5	22.0	19.5	19.0	19.0
8	11.0	11.0	11.0	18.0	17.0	17.5	22.0	22.0	22.0	19.5	19.0	19.0
9	11.5	10.5	11.0	18.0	18.0	18.0	22.5	22.0	22.0	19.5	19.0	19.5
10	11.5	11.0	11.5	18.5	18.0	18.5	22.5	22.0	22.5	19.0	19.0	19.0
11	12.5	11.5	12.0	18.5	18.0	18.0	22.5	22.5	22.5	19.0	18.5	18.5
12	14.0	13.0	13.5	18.0	17.5	17.5	22.5	22.0	22.5	18.5	18.5	18.5
13	14.5	13.5	14.0	17.5	17.5	17.5	22.5	22.0	22.0	18.5	18.5	18.5
14	14.0	13.5	13.5	17.5	17.5	17.5	22.0	22.0	22.0	18.5	18.5	18.5
15	14.5	13.5	14.0	18.0	17.5	17.5	22.0	21.5	22.0	18.5	18.5	18.5
16	14.5	14.0	14.0	18.0	18.0	18.0	22.0	21.5	22.0	18.5	18.5	18.5
17	14.5	14.5	14.5	18.5	18.0	18.5	22.0	21.5	22.0	18.5	18.5	18.5
18	14.5	14.5	14.5	19.5	18.5	19.0	22.0	22.0	22.0	18.5	18.5	18.5
19	14.5	14.0	14.5	20.0	19.5	20.0	22.5	22.0	22.0	18.5	18.5	18.5
20	14.5	14.0	14.0	21.0	20.0	20.5	22.5	22.0	22.5	19.0	18.5	18.5
21	14.5	14.0	14.0	21.5	21.0	21.0	22.0	21.5	22.0	18.5	18.5	18.5
22	15.0	14.5	15.0	21.5	21.0	21.5	22.0	21.5	21.5	19.0	18.5	18.5
23	15.0	15.0	15.0	21.5	21.0	21.5	21.5	21.5	21.5	18.5	18.5	18.5
24	15.5	14.5	15.0	21.5	21.5	21.5	21.5	21.0	21.5	18.5	18.0	18.5
25	16.5	15.5	16.0	22.0	21.5	21.5	21.5	21.0	21.0	18.5	18.0	18.0
26	17.0	16.5	17.0	21.5	21.5	21.5	21.0	21.0	21.0	18.0	18.0	18.0
27	17.5	17.0	17.0	21.5	21.5	21.5	21.0	20.5	21.0	18.0	18.0	18.0
28	18.0	17.5	17.5	21.5	21.5	21.5	21.0	20.5	20.5	18.0	17.5	17.5
29	18.5	18.0	18.0	21.5	21.0	21.5	21.0	20.5	20.5	17.5	17.5	17.5
30	18.5	18.0	18.5	21.5	21.5	21.5	21.0	20.5	21.0	17.5	17.0	17.0
31	---	---	---	22.0	21.5	22.0	21.0	20.5	20.5	---	---	---
MONTH	18.5	9.5	14.0	22.0	16.0	19.0	22.5	20.5	21.5	20.5	17.0	18.5
YEAR	22.5	.0	9.0									

12389000 CLARK FORK NEAR PLAINS, MT

LOCATION.--Lat 47°25'47", long 114°51'18", in E½SW¼ sec.1, T.19 N., R.26 W., Sanders County, Hydrologic Unit 17010213, on right bank 2.4 mi (3.9 km) southeast of Plains, 6.0 mi (9.7 km) downstream from Flathead River, and at mile 239.0 (238.6 km).

DRAINAGE AREA.--19,958 mi² (51,691 km²).

PERIOD OF RECORD.--October 1910 to current year. Monthly discharge only for some periods, published in WSP 1316.

REVISED RECORDS.--WSP 1246: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,449.11 ft (746.489 m) National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to Nov. 28, 1911, nonrecording gage at site 50 ft (15 m) upstream at same datum.

REMARKS.--Water-discharge records excellent. Flow partly regulated by Hungry Horse Reservoir (see p.) and by Flathead Lake (see p.). Diversions for irrigation of about 335,000 acres (1,360 km²) above station.

AVERAGE DISCHARGE.--69 years, 20,000 ft³/s (566.4 m³/s) 14,490,000 acre-ft/yr (17.9 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 134,000 ft³/s (3,790 m³/s) June 5, 1948, gage height, 19.17 ft (5.843 m); minimum, 3,200 ft³/s (90.6 m³/s) Feb. 8, 1936, Dec. 10, 1940; minimum gage height, 2.70 ft (0.823 m), from partly estimated gage-height record, Sept. 2, 1958.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 73,100 ft³/s (2,070 m³/s) May 28, gage height, 13.15 ft (4.008 m); minimum, 6,080 ft³/s (172 m³/s) Mar. 4, 6, gage height, 3.51 ft (1.070 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12300	16300	16700	10500	16600	8120	12000	25400	52000	23400	12700	12700
2	12300	16200	16700	12000	16600	8080	11700	27800	46400	23100	12400	13500
3	12200	15500	16300	12500	14500	6960	11700	28600	43300	22500	13000	12700
4	12100	15900	16300	13000	15400	6150	11600	29900	44200	27400	12200	10300
5	12600	16300	16300	13200	14700	6300	10600	32900	46500	28200	9490	9970
6	12500	16200	16700	13500	14400	6270	11000	36600	48000	24500	10900	11200
7	13200	15900	16700	14000	14000	6800	11500	37800	48000	21700	10900	11800
8	12000	15400	16500	14300	14300	8770	11700	35800	42000	20700	11000	11100
9	12200	16200	16000	14600	13100	9400	12700	32900	36600	20500	10500	11400
10	12500	17000	16000	15200	12100	10100	13400	31500	35800	21100	10600	11400
11	12400	16400	16300	15800	12400	9780	13200	33000	35000	19300	10500	10800
12	12500	15700	16300	16800	12300	9940	13800	35900	35900	19500	9340	10800
13	12300	15500	16700	17500	13000	9780	13400	36200	37900	19600	9240	11300
14	11900	15100	16800	18300	14000	9110	13300	36900	46500	19400	9800	11400
15	12100	15300	15700	16800	14300	9900	13400	37900	52900	19500	9910	9930
16	14100	15200	16100	17600	12200	10700	13700	41700	50300	25900	10500	10900
17	12700	14700	16400	17800	11600	10800	13600	46300	46300	17200	8940	10800
18	11400	16400	16400	19200	10400	11400	14600	48900	44600	16900	9610	10900
19	11100	16900	16200	19800	10600	11200	15300	50300	40300	16200	10800	11100
20	12600	16400	16200	18400	10800	12000	16100	51500	39900	16600	11100	9720
21	15300	15500	16400	16500	10000	12100	15900	52500	42800	16100	11000	8370
22	15900	15500	16800	16000	9860	11700	15900	54100	48200	13100	11300	7800
23	16200	15000	15800	17800	9780	11700	16300	57200	45500	12800	10300	7760
24	15700	15800	16500	16400	9240	11700	16100	61800	43400	12600	10100	7660
25	16100	16200	16300	16800	8160	11900	16400	66800	42300	12700	10300	8300
26	16400	16200	16200	17600	8690	12000	16700	69600	41700	11600	11100	6870
27	15400	17000	16000	16100	8860	12500	17400	70800	36100	13300	11900	6460
28	15700	16600	16200	16100	9320	12300	17400	72200	27600	12000	13000	6580
29	15700	16600	14900	16900	---	12600	19300	70800	24600	12100	12690	6770
30	16300	16800	11900	16400	---	12200	22200	68400	23400	11600	13100	6750
31	16700	---	10600	16900	---	12400	---	59900	---	13000	11800	---
TOTAL	422400	479700	494900	494300	341210	314660	431900	1441900	1248000	564100	339930	297040
MEAN	13630	15990	15960	15950	12190	10150	14400	46510	41600	18200	10970	9901
MAX	16700	17000	16800	19800	16600	12600	22200	72200	52900	28200	13100	13500
MIN	11100	14700	10600	10500	8160	6150	10600	25400	23400	11600	8940	6460
AC-FT	837800	951500	981600	980400	676800	624100	856700	2860000	2475000	1119000	674300	589200

CAL YR 1978 TOTAL 7683270 MEAN 21050 MAX 65700 MIN 7350 AC-FT 15240000
WTR YR 1979 TOTAL 6870040 MEAN 18820 MAX 72200 MIN 6150 AC-FT 13630000

12389500 THOMPSON RIVER NEAR THOMPSON FALLS, MT

LOCATION.--Lat 47°35'31", long 115°13'43", in NW¼NE¼SE¼ sec.7, T.21 N., R.28 W., Sanders County, Hydrologic Unit 17010213, Lolo National Forest, on right bank 1.3 mi (2.1 km) upstream from mouth and 5.5 mi (8.8 km) east of Thompson Falls.

DRAINAGE AREA.--642 mi² (1,663 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March to September 1911, October 1911 to September 1916 (occasional gage heights, discharges, and discharge measurements), April 1956 to current year. Records for January and February 1911, published in WSP 910, have been found to be unreliable and should not be used.

REVISED RECORDS.--WSP 1246: 1911. See also PERIOD OF RECORD.

GAGE.--Water-stage recorder. Datum of gage is 2,429.97 ft (740.655 m) National Geodetic Vertical Datum of 1929 (Bureau of Public Roads bench mark). October 1911 to September 1916, nonrecording gage at site 0.2 mi (0.3 km) upstream at different datum.

REMARKS.--Water-discharge records good. Minor diversions above station for irrigation; acreage unknown. Diversion from headwaters of Alder Creek in SW¼ sec.16, T.23 N., R.25 W., to supplement water supply for storage in Upper Dry Fork Reservoir in Little Bitterroot River basin.

AVERAGE DISCHARGE.--23 years, 482 ft³/s (13.65 m³/s), 10.19 in/yr (259 mm/yr), 349,200 acre-ft/yr (431 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,080 ft³/s (172 m³/s) June 9, 1964, gage height, 8.53 ft (2.600 m); minimum, 60 ft³/s (1.70 m³/s) Nov. 20, 1977, gage height, 1.96 ft (0.597 m), result of freezeup; minimum gage height, 1.01 ft (0.308 m) Dec. 17, 1964, result of freezeup.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in May to June 1948 reached a discharge of 6,190 ft³/s (175 m³/s), by slope-area measurement of peak flow at site 0.2 mi (0.3 km) downstream.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,320 ft³/s (65.7 m³/s) May 24, gage height, 5.32 ft (1.622 m); minimum daily, 95 ft³/s (2.69 m³/s) Jan. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	197	166	160	95	145	154	401	1660	1130	460	234	198
2	193	166	158	100	137	148	390	1550	1080	452	229	193
3	194	172	157	110	138	144	383	1440	1140	430	226	189
4	193	192	167	115	136	155	382	1490	1250	413	224	189
5	191	192	149	110	139	163	381	1790	1300	402	222	189
6	189	181	136	105	134	199	435	1980	1260	405	219	185
7	189	177	109	105	142	320	555	1870	1150	422	216	181
8	186	179	127	110	128	425	627	1620	1030	376	213	180
9	185	182	159	120	133	383	680	1400	946	362	211	182
10	184	166	159	130	147	341	685	1270	901	352	209	181
11	181	122	163	135	154	328	649	1200	891	347	206	179
12	180	145	159	141	169	340	604	1200	917	340	205	177
13	179	158	123	138	224	349	582	1260	924	333	203	174
14	184	139	152	138	246	348	564	1360	880	325	209	174
15	184	142	159	137	210	354	559	1520	823	313	212	171
16	182	158	142	131	184	395	565	1800	770	308	209	170
17	182	170	142	133	182	422	669	1930	740	300	201	166
18	180	171	149	135	178	436	814	1820	710	289	200	166
19	178	152	148	133	178	428	791	1710	674	282	203	166
20	177	146	147	137	174	420	732	1660	650	276	208	164
21	179	142	150	145	170	414	686	1650	623	277	207	163
22	177	136	151	137	167	415	674	1770	592	270	206	162
23	176	163	141	130	158	420	656	1970	571	265	201	161
24	177	164	160	136	162	448	641	2240	555	261	210	161
25	174	161	134	137	157	519	617	2250	537	258	205	160
26	173	160	120	131	161	528	670	2160	515	256	198	159
27	173	156	115	137	161	506	771	2210	499	252	203	158
28	170	160	110	125	163	463	930	1990	484	250	201	155
29	173	151	105	121	---	438	1130	1660	465	251	196	155
30	171	157	100	114	---	424	1350	1420	454	245	193	155
31	169	---	98	128	---	412	---	1250	---	239	196	---
TOTAL	5620	4826	4349	3899	4577	11239	19573	52100	24461	10013	6475	5163
MEAN	181	161	140	126	163	363	652	1681	815	323	209	172
MAX	197	192	167	145	246	528	1350	2250	1300	460	234	198
MIN	169	122	98	95	128	144	381	1200	454	239	193	155
CFSM	.28	.25	.22	.20	.25	.57	1.02	2.62	1.27	.50	.33	.27
IN.	.33	.28	.25	.23	.27	.65	1.13	3.02	1.42	.58	.38	.30
AC-FT	11150	9570	8630	7730	9080	22290	38820	103300	48520	19860	12840	10240

CAL YR 1978 TOTAL 172338 MEAN 472 MAX 1750 MIN 98 CFSM .74 IN 9.99 AC-FT 341800
WTR YR 1979 TOTAL 152295 MEAN 417 MAX 2250 MIN 95 CFSM .65 IN 8.82 AC-FT 302100

12389500 THOMPSON RIVER NEAR THOMPSON FALLS, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: June 1977 to March 1979 (discontinued).

INSTRUMENTATION.--Temperature recorder since June 22, 1977.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum, 21.0°C July 23, 1977, minimum, 0.0°C on several days during winter periods.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum, 10.0°C Oct. 1, 11; minimum, 0.0°C on several days during November to January.

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	10.0	8.0	9.0	4.0	2.5	3.0	2.5	1.5	2.0	.5	.5	.5
2	9.5	6.5	8.0	4.0	2.5	3.0	2.5	2.0	2.0	.5	.5	.5
3	9.0	6.5	7.5	5.5	3.5	4.5	3.0	2.0	2.0	.5	.5	.5
4	9.5	6.0	7.5	6.0	5.0	5.5	3.0	2.0	2.5	.5	.5	.5
5	9.0	5.5	7.0	5.0	3.5	4.0	1.5	.5	1.0	.5	.5	.5
6	9.0	5.5	7.0	4.0	3.0	3.5	1.0	.5	.5	.5	.5	.5
7	9.0	6.0	7.5	6.0	4.0	5.0	.5	.5	.5	.5	.5	.5
8	9.0	6.0	7.5	6.0	5.5	6.0	.5	.5	.5	.5	.5	.5
9	9.5	6.0	7.5	5.5	2.0	4.0	.5	.0	.5	.5	.5	.5
10	6.5	7.5	8.0	2.0	.5	1.0	1.0	.5	1.0	.5	.5	.5
11	10.0	8.0	8.5	1.0	.5	.5	2.0	1.0	1.5	.5	.5	.5
12	8.5	6.0	7.0	1.5	.5	1.0	2.0	.5	1.5	.5	.5	.5
13	7.5	4.5	6.0	2.5	1.0	1.5	.5	.0	.0	.5	.5	.5
14	7.0	4.5	5.5	1.5	.5	1.0	1.0	.0	.5	.5	.5	.5
15	7.5	5.0	6.0	1.5	.5	1.0	1.0	1.0	1.0	.5	.5	.5
16	8.0	5.5	6.5	2.0	1.0	1.5	1.0	.5	.5	.5	.5	.5
17	8.0	5.5	7.0	3.0	2.5	3.0	1.0	.5	1.0	.5	.5	.5
18	8.0	5.5	6.5	3.0	.5	2.0	1.5	1.0	1.0	.5	.5	.5
19	7.5	5.0	6.0	.5	.5	.5	2.0	1.5	1.5	.5	.5	.5
20	7.5	5.5	6.5	.5	.0	.5	2.0	1.5	1.5	.5	.5	.5
21	8.5	6.0	7.0	1.0	.0	.5	2.0	1.5	2.0	.5	.5	.5
22	6.0	4.5	5.5	.5	.0	.5	2.0	1.5	2.0	.5	.5	.5
23	7.0	5.0	5.5	1.5	.5	1.0	2.0	1.5	1.5	.5	.5	.5
24	7.5	6.0	7.0	2.0	1.5	2.0	2.5	2.0	2.5	.5	.5	.5
25	6.0	4.0	4.5	3.0	2.0	2.5	2.0	.5	1.0	1.0	.5	.5
26	5.0	3.0	4.0	3.0	2.5	2.5	.5	.5	.5	1.5	.5	1.0
27	6.0	4.5	5.0	2.5	1.5	2.0	1.0	.5	.5	1.5	.5	1.0
28	6.5	5.0	5.5	3.0	1.5	2.0	.5	.0	.5	.5	.5	.5
29	6.0	5.5	6.0	2.0	1.5	2.0	.5	.0	.0	.5	.0	.5
30	6.0	5.0	5.5	2.0	1.5	2.0	.5	.0	.5	.5	.0	.5
31	4.5	3.0	3.5	---	---	---	.5	.0	.5	.5	.0	.5
MONTH	10.0	3.0	6.5	6.0	.0	2.5	3.0	.0	1.0	1.5	.0	.5

12389500 THOMPSON RIVER NEAR THOMPSON FALLS, MT--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	.5	.5	.5	3.5	1.0	2.0						
2	.5	.5	.5	3.0	.5	2.0						
3	.5	.5	.5	3.5	.5	2.0						
4	.5	.5	.5	4.0	2.0	3.0						
5	2.0	.5	1.0	4.5	3.5	4.0						
6	2.0	1.0	1.5	4.5	4.0	4.0						
7	2.0	1.0	1.5	4.5	3.0	3.5						
8	1.5	.5	1.0	3.5	2.0	2.5						
9	2.0	1.0	1.5	4.0	1.5	2.5						
10	2.0	1.5	2.0	4.5	1.5	3.0						
11	2.5	1.5	2.0	4.5	2.0	3.5						
12	3.0	2.0	2.5	5.5	3.0	4.0						
13	2.5	2.0	2.0	4.5	1.5	3.5						
14	3.5	2.0	2.5	5.0	2.0	3.5						
15	3.0	1.5	2.0	5.0	2.0	3.5						
16	2.5	1.0	2.0	5.0	3.5	4.0						
17	3.0	1.5	2.5	6.0	3.5	4.5						
18	3.5	2.5	3.0	5.0	3.0	4.0						
19	3.5	2.5	3.0	5.0	3.5	4.5						
20	3.0	2.0	2.5	5.5	2.5	4.0						
21	2.5	1.5	2.0	5.5	2.5	4.0						
22	2.5	2.0	2.0	---	3.0	---						
23	2.0	1.0	1.5	---	---	---						
24	3.0	1.0	2.0	---	---	---						
25	3.5	2.5	3.0	---	---	---						
26	3.5	2.5	3.0	---	---	---						
27	3.5	2.5	3.0	---	---	---						
28	4.5	2.5	3.0	---	---	---						
29	---	---	---	---	---	---						
30	---	---	---	---	---	---						
31	---	---	---	---	---	---						
MONTH	4.5	.5	2.0	6.0	.5	3.5						
YEAR	10.0	.0	2.5									

12390700 PROSPECT CREEK AT THOMPSON FALLS, MT

LOCATION.--Lat 47°35'10", long 115°21'15", in lot 12, SE¼SE¼SE¼ sec.7, T.21 N., R.29 W., Sanders County, Hydrologic Unit 17010213, on right bank 500 ft (150 m) downstream from Dry Creek, 0.5 mi (0.8 km) upstream from mouth, and 0.7 mi (1.1 km) south of Thompson Falls.

DRAINAGE AREA.--182 mi^2 (471 km^2).

PERIOD OF RECORD.--April 1956 to current year.

GAGE.--Water-stage recorder. Datum of gage is 2,382.40 ft (726.156 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. No known regulation or diversions above station. Several observations of water temperature were made during the year and are available in files of Helena district office.

AVERAGE DISCHARGE.--23 years, 260 ft^3/s (7.363 m^3/s), 19.40 in/yr (493 mm/yr), 188,400 acre-ft/yr (232 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,490 ft^3/s (155 m^3/s) Jan. 16, 1977, gage height, 9.86 ft (3.005 m); minimum, 29 ft^3/s (0.82 m^3/s) Jan. 5, 1970 (result of freezeup), Jan. 2, 1977, Dec. 29, 1978 (result of freezeup); minimum gage height, 0.25 ft (0.076 m) Dec. 29, 1978.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,690 ft^3/s (47.9 m^3/s) May 6, gage height, 5.51 ft (1.679 m); minimum, 29 ft^3/s (0.82 m^3/s) Dec. 29, gage height, 0.25 ft (0.076 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	65	52	45	31	41	52	195	1150	557	199	93	67
2	65	52	43	34	41	52	186	1050	570	200	92	66
3	64	53	43	33	40	52	177	941	633	181	90	66
4	63	55	46	33	40	53	175	1020	690	171	89	65
5	63	52	44	32	41	56	177	1490	696	165	88	64
6	63	51	43	31	41	63	186	1610	655	162	86	63
7	62	50	40	31	42	74	214	1290	587	157	85	62
8	61	51	43	32	41	88	272	969	514	152	84	62
9	61	51	43	34	41	111	334	787	462	148	83	63
10	60	49	43	37	42	128	349	696	438	143	82	61
11	60	49	44	40	44	124	339	666	436	142	81	61
12	59	48	44	42	46	132	318	688	456	139	80	60
13	59	48	42	44	54	142	303	754	452	134	79	59
14	58	48	44	42	59	145	293	836	422	131	80	58
15	58	47	44	40	55	150	281	919	387	128	80	58
16	58	47	43	41	46	166	279	1070	357	126	77	57
17	57	50	43	40	45	187	341	1070	338	123	75	56
18	57	49	43	41	45	227	456	958	320	120	76	55
19	56	47	43	42	46	244	447	915	304	116	75	55
20	56	46	43	43	47	242	411	888	289	117	74	54
21	55	46	43	44	48	243	380	879	273	116	73	54
22	55	45	43	44	48	240	366	979	259	112	72	53
23	55	45	43	43	48	245	355	1130	246	111	71	53
24	55	45	46	43	48	256	334	1250	236	109	76	52
25	54	45	44	42	49	284	326	1150	226	108	72	52
26	54	45	43	42	49	288	355	1110	219	106	71	51
27	53	44	43	41	51	279	426	1140	215	104	71	51
28	53	45	40	41	53	254	558	960	208	103	69	50
29	54	44	33	41	---	235	742	778	200	101	68	50
30	54	44	31	39	---	218	959	682	192	98	68	49
31	53	---	30	40	---	205	---	594	---	95	68	---
TOTAL	1800	1443	1305	1203	1291	5235	10534	30429	11837	4119	2428	1727
MEAN	58.1	48.1	42.1	38.8	46.1	169	351	982	395	133	78.3	57.6
MAX	65	55	46	44	59	288	959	1610	696	200	93	67
MIN	53	44	30	31	40	52	175	594	192	95	68	49
CFSM	.32	.26	.23	.21	.25	.93	1.93	5.40	2.17	.73	.43	.32
IN.	.37	.29	.27	.25	.26	1.07	2.15	6.22	2.42	.84	.50	.35
AC-FT	3570	2860	2590	2390	2560	10380	20890	60360	23480	8170	4820	3430

CAL YR 1978 TOTAL 89771 MEAN 246 MAX 1270 MIN 30 CFSM 1.35 IN 18.35 AC-FT 178100
WTR YR 1979 TOTAL 73351 MEAN 201 MAX 1610 MIN 30 CFSM 1.10 IN 14.99 AC-FT 145500

12391400 CLARK FORK BELOW NOXON RAPIDS DAM, NEAR NOXON, MT

LOCATION.--Lat 47°57'40", long 115°43'58", in SW¼ sec.33, T.26 N., R.32 W., Sanders County, Hydrologic Unit 17010213, at Noxon Rapids Dam 1 mi (2 km) upstream from Rock Creek, 3 mi (5 km) southeast of Noxon, and at mile 169.7 (273.0 km).

DRAINAGE AREA.--21,833 mi² (56,547 km²).

PERIOD OF RECORD.--May 1960 to current year.

GAGE.--Plant generator rating for discharge through powerplant. Water-stage recorder on reservoir determines head on taintor gates. Datum of gage is at National Geodetic Vertical Datum of 1929 (levels by The Washington Water Power Co.).

REMARKS.--Records good. Flow regulated by Hungry Horse Reservoir (see p. 728) and Flathead Lake (see p.751). Diversions for irrigation of about 350,000 acres (1,420 km²) above station. Some sub-surface flow is indicated by comparison with records for adjacent gaging stations. Figures of discharge given herein are combined flows through turbines and spillway.

COOPERATION.--Records collected by The Washington Water Power Co., under general supervision of the Geological Survey, in connection with a Federal Power Commission project.

AVERAGE DISCHARGE.--19 years, 21,470 ft³/s (608.0 m³/s), 15,560,000 acre-ft/yr (19.2 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 124,900 ft³/s (3,540 m³/s) June 12, 1964; minimum daily, 80 ft³/s (2.27 m³/s) Oct. 16, 1960, Aug. 26, 1962, Aug. 18, 25, 31, Sept. 1, 1963, Sept. 11, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 73,400 ft³/s (2,080 m³/s) May 28: minimum daily, 410 ft³/s (11.6 m³/s) Aug. 12.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12600	13600	11500	6010	21500	14000	13400	30200	49700	23900	15500	12200
2	11800	12700	8240	10700	19000	10100	10800	30600	46600	22200	15400	9970
3	15400	14800	12900	11200	14200	6870	9380	28800	44600	23500	14400	9280
4	13800	15900	16400	12600	4850	6640	12800	29700	44300	20400	4980	10300
5	13000	16900	17400	16300	8440	13800	14300	29600	45200	27800	4000	10500
6	12000	17300	19600	11000	12900	8650	14500	33700	47100	27400	13800	10900
7	11300	8790	18700	11500	12100	5760	10900	43100	47100	22200	16500	14800
8	5620	16600	16100	14700	14100	6580	2370	45200	43700	21100	13700	9120
9	12500	19700	14700	13400	7230	7500	14700	43100	36400	26300	11600	7450
10	12800	22100	12800	11100	5470	5460	15900	39600	34800	20900	14100	13900
11	12800	18600	13700	9540	2500	6890	13000	39500	36200	20100	2280	12500
12	12500	15000	13500	10400	9160	10300	15300	38700	37300	20100	410	13300
13	11600	19100	17300	9950	11400	6120	15500	45700	38500	19600	7980	14200
14	10900	16000	14000	13900	11500	7880	15000	45000	41500	13000	5230	14300
15	7890	13600	17700	16400	13400	6820	9370	41800	47400	4650	10600	6630
16	12400	11800	18400	15900	12300	10700	14000	45800	46300	26000	9970	2650
17	13600	12500	13200	16000	15700	9130	13900	46600	46400	22500	11500	9970
18	9980	10300	15100	18900	10300	8160	16900	46800	43500	21300	5050	9000
19	12300	18500	15500	14100	16100	17800	17800	47200	40400	22300	7140	6950
20	9520	17300	14100	7860	13200	12900	20100	47400	37500	22200	12200	9680
21	14300	15400	10600	14200	9830	16300	17500	47700	39100	6380	15900	11600
22	14800	15400	13800	20200	6400	13800	10600	47800	43300	660	11700	7050
23	14800	10400	15100	16300	11000	9920	18000	47700	46200	19200	13500	5190
24	13300	12900	14900	14700	9890	6620	21500	60300	41600	14600	13100	7550
25	17900	13800	15000	15400	7170	10300	19800	69300	40700	14100	6320	3900
26	18200	11400	18300	15600	7260	12900	22800	71400	40500	12600	5390	7370
27	13400	20900	12700	12200	7880	14000	22800	72800	35000	13300	14100	5400
28	11700	21600	18300	12900	8760	14500	24700	73400	29700	3570	13500	7130
29	15900	13400	17500	17300	---	11800	23300	72500	27900	4090	11000	4650
30	18400	15200	16600	19100	---	7880	28300	68900	22600	13900	14600	5900
31	17400	---	19500	17800	---	16000	---	62400	---	12400	9230	---
TOTAL	404410	461490	473140	427160	303540	316080	479220	1491900	1221100	542250	324680	273740
MEAN	13050	15380	15260	13780	10840	10200	15970	48130	40700	17490	10470	9125
MAX	18400	22100	19600	20200	21500	17800	28300	73400	49700	27800	16500	14800
MIN	5620	8790	8240	6010	2500	5460	2370	28800	22600	660	410	2650
AC-FT	802100	915400	938500	847300	602100	626900	950500	2959000	2422000	1076000	644000	543000

CAL YR 1978 TOTAL 7782800 MEAN 21320 MAX 65600 MIN 5150 AC-FT 15440000
WTR YR 1979 TOTAL 6718710 MEAN 18410 MAX 73400 MIN 410 AC-FT 13330000

12391550 BULL RIVER NEAR NOXON, MT

LOCATION.--Lat 48°02'50", long 115°50'01", in NW¼NW¼NE¼ sec. 3, T.26 N., R.33 W., Sanders County, Hydrologic Unit 17010213, Kaniksu National Forest, on left bank 1.2 mi (1.9 km) upstream from Cabinet Gorge Reservoir flow line, 1.6 mi (2.6 km) upstream from bridge on State Highway 200, and 4.4 mi (7.1 km) northwest of Noxon.

DRAINAGE AREA.--139 mi (360 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--Occasional discharge measurements, water years 1942-44, 1971, and annual maximum, water year 1948, all at site 1.6 mi (2.6 km) upstream. October 1972 to current year.

GAGE.--Water-stage recorder. Datum of gage is 2,202.40 ft (671.292 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good.

AVERAGE DISCHARGE.--7 years, 377 ft^3/s (10.68 m^3/s), 36.83 in/yr (935 mm/yr), 273,100 acre-ft/yr (337 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,890 ft^3/s (110 m^3/s) Jan. 16, 1974, gage height, 9.73 ft (2.966 m), from floodmark; minimum discharge, 29 ft^3/s (0.82 m^3/s) Dec. 4, 1972, gage height, 3.92 ft (1.195 m), result of freezeup.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,760 ft^3/s (49.8 m^3/s) May 6, gage height, 7.78 m (2.371 m); minimum daily, 43 ft^3/s (1.22 m^3/s) Jan. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	129	90	90	43	62	131	309	1290	800	359	142	96
2	125	6	86	44	61	131	295	1240	883	388	140	94
3	123	90	88	46	61	129	282	1220	1050	337	138	94
4	121	115	90	48	61	127	273	1300	1150	309	135	92
5	119	121	87	50	63	137	269	1560	1170	305	132	90
6	117	115	82	48	65	174	266	1730	1160	305	130	89
7	115	113	73	48	69	254	285	1610	952	298	128	88
8	113	113	76	52	66	351	302	1320	772	282	126	87
9	111	111	77	56	69	362	329	1070	701	269	124	88
10	109	107	83	62	82	359	359	920	722	257	122	87
11	107	104	85	63	90	351	366	841	761	248	120	86
12	105	102	87	65	104	347	366	853	823	242	120	85
13	104	102	74	67	146	347	370	895	829	228	118	84
14	104	98	82	66	169	344	384	977	738	214	117	83
15	102	96	87	65	148	340	374	1110	624	206	115	82
16	102	97	82	66	139	344	370	1240	562	201	114	79
17	100	102	77	67	133	362	426	1300	539	196	112	77
18	98	104	80	66	129	374	504	1240	553	191	110	76
19	97	98	82	66	127	374	504	1180	535	186	109	74
20	97	95	79	66	125	374	483	1150	491	183	108	74
21	97	95	77	72	123	370	458	1180	454	181	106	73
22	93	88	79	72	119	362	442	1300	434	176	105	72
23	93	97	79	67	114	355	426	1460	426	171	104	72
24	95	95	80	66	113	351	414	1600	422	165	106	70
25	93	93	77	67	111	366	403	1620	418	160	105	70
26	91	91	72	65	119	370	407	1640	407	160	105	69
27	91	91	74	65	127	370	470	1640	403	155	104	69
28	90	93	62	65	131	366	634	1490	396	155	103	67
29	93	90	54	61	---	351	865	1170	377	150	100	66
30	93	90	48	61	---	340	1130	939	366	148	99	66
31	90	---	45	57	---	326	---	829	---	145	98	---
TOTAL	3217	2984	2396	1872	2926	9639	12765	38914	19918	6970	3595	2399
MEAN	104	99.5	77.3	60.4	105	311	426	1255	664	225	116	80.0
MAX	129	121	90	72	169	374	1130	1730	1170	388	142	96
MIN	90	88	45	43	61	127	266	829	366	145	98	66
CFSM	.75	.72	.56	.44	.76	2.24	3.07	9.03	4.78	1.62	.84	.58
IN.	.86	.80	.64	.50	.78	2.58	3.42	10.41	5.33	1.87	.96	.64
AC-FT	6380	5920	4750	3710	5800	19120	25320	77190	39510	13820	7130	4760

CAL YR 1978 TOTAL 135516 MEAN 371 MAX 1760 MIN 45 CFSM 2.67 IN 36.27 AC-FT 268800
WTR YR 1979 TOTAL 107595 MEAN 295 MAX 1730 MIN 43 CFSM 2.12 IN 28.79 AC-FT 213400

12391550 BULL RIVER NEAR NOXON, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: June 1977 to April 1979 (discontinued).

INSTRUMENTATION.--Temperature recorder since June 22, 1977.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum, 24.0°C, July 16, 1977; minimum, 0.0°C on several days during most winter periods.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum, 10.5°C Oct. 2; minimum, 0.0°C Nov. 20, Jan. 6.

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	10.0	7.0	8.5	5.5	3.5	4.5	3.5	2.5	3.0	1.5	1.0	1.5
2	10.5	6.5	8.0	5.0	3.0	4.0	3.0	2.5	2.5	2.5	1.0	1.5
3	9.5	6.5	8.0	5.5	5.0	5.5	2.5	2.0	2.5	2.0	.5	1.0
4	10.0	6.0	7.5	6.0	4.5	5.5	3.0	2.0	2.5	1.0	.5	1.0
5	9.5	5.5	7.5	4.5	3.0	4.0	1.5	.5	1.0	1.0	1.0	1.0
6	9.5	5.5	7.5	5.0	3.5	4.5	1.0	.5	1.0	1.5	.0	1.0
7	9.5	6.0	7.5	5.5	5.0	5.5	---	.5	---	1.5	1.0	1.0
8	10.0	6.5	8.0	5.5	5.0	5.5	---	---	---	1.5	1.0	1.0
9	10.0	6.0	8.0	5.0	2.5	4.0	---	---	---	1.0	1.0	1.0
10	8.5	7.5	8.0	2.5	1.0	1.5	---	---	---	1.5	1.0	1.0
11	9.0	8.0	8.5	1.5	.5	1.0	---	---	---	1.5	1.0	1.5
12	8.5	6.0	7.5	1.5	1.0	1.5	---	---	---	1.5	1.0	1.5
13	8.0	5.0	6.5	2.0	1.0	1.5	---	---	---	1.5	1.0	1.5
14	8.0	4.5	6.5	1.0	.5	1.0	---	---	---	1.5	1.0	1.0
15	8.0	5.0	6.5	1.5	.5	1.0	---	---	---	1.5	1.0	1.5
16	8.0	5.5	6.5	2.0	1.0	1.5	---	---	---	1.5	1.0	1.5
17	8.5	6.0	7.0	3.0	2.0	2.5	1.0	.5	1.0	1.5	1.0	1.5
18	8.5	5.5	7.0	2.5	1.0	2.0	1.0	.5	1.0	1.5	1.0	1.5
19	8.5	5.5	7.0	1.0	.5	.5	1.0	1.0	1.0	1.5	1.5	1.5
20	8.0	6.0	7.0	1.0	.0	.5	1.0	1.0	1.0	1.5	1.5	1.5
21	8.5	6.5	7.5	1.0	.5	1.0	1.0	1.0	1.0	1.5	1.0	1.5
22	7.0	4.5	6.0	1.0	.5	1.0	1.0	.5	1.0	1.5	1.0	1.5
23	7.5	5.0	6.0	1.5	1.0	1.0	1.0	1.0	1.0	1.5	1.0	1.5
24	7.5	5.5	6.5	2.5	1.5	2.0	1.0	1.0	1.0	1.5	1.0	1.5
25	6.0	4.0	5.0	3.0	2.5	2.5	1.5	1.0	1.0	1.5	1.0	1.5
26	6.0	3.5	5.0	3.0	2.5	3.0	1.5	1.0	1.0	1.5	1.0	1.5
27	6.5	5.0	5.5	3.5	2.0	3.0	1.5	1.0	1.0	1.5	1.0	1.5
28	6.5	5.0	5.5	3.0	2.0	2.5	1.5	1.0	1.0	1.5	1.0	1.0
29	6.0	5.0	5.5	3.5	2.5	3.0	1.5	1.0	1.5	1.5	1.0	1.0
30	6.0	4.5	5.5	3.0	2.0	2.5	2.0	1.0	1.5	1.5	1.0	1.0
31	6.0	4.5	5.0	---	---	---	2.0	1.5	2.0	2.0	1.0	1.5
MONTH	10.5	3.5	7.0	6.0	.0	2.5	3.5	.5	1.5	2.5	.0	1.5

12391550 BULL RIVER NEAR NOXON, MT--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	1.5	1.0	1.5	5.5	2.0	3.5	6.5	4.0	5.0			
2	1.5	1.0	1.5	4.5	2.0	3.5	7.5	4.0	5.5			
3	1.5	1.5	1.5	5.0	1.5	3.0	5.5	4.0	5.0			
4	1.5	1.5	1.5	4.5	3.5	4.0	6.5	4.5	5.0			
5	1.5	1.5	1.5	5.5	4.0	4.5	8.5	4.5	6.0			
6	1.5	1.0	1.5	6.0	4.5	5.0	7.0	5.0	6.0			
7	1.5	1.0	1.5	5.5	4.0	4.5	8.5	5.0	6.5			
8	1.5	1.0	1.5	5.5	3.0	4.0	8.0	5.0	6.0			
9	1.5	1.5	1.5	5.0	2.5	3.5	7.0	5.5	6.0			
10	1.5	1.0	1.5	5.5	2.5	4.0	6.5	5.0	5.5			
11	1.5	1.0	1.0	6.0	3.0	4.0	7.0	4.5	5.5			
12	1.0	1.0	1.[illegible]	6.0	4.0	4.5	6.5	4.5	5.5			
13	1.0	1.0	1.0	6.0	3.0	4.5	6.0	5.0	5.5			
14	2.5	1.0	2.0	6.5	3.0	4.5	6.5	5.0	5.5			
15	3.5	2.0	2.5	6.5	3.5	4.5	7.0	5.0	5.5			
16	3.0	2.0	2.5	5.0	4.5	5.0	7.5	5.5	6.5			
17	3.5	2.5	3.0	7.0	4.0	5.0	6.5	5.5	6.0			
18	4.0	3.0	3.5	6.5	3.5	4.5	7.0	5.0	5.5			
19	4.5	3.0	3.5	6.0	4.0	5.0	6.5	5.0	5.5			
20	4.0	3.0	3.5	7.0	3.5	5.0	7.5	4.5	5.5			
21	3.5	2.5	3.0	7.0	4.0	5.0	8.5	4.5	6.0			
22	3.5	2.5	3.0	7.0	4.0	5.0	7.0	5.5	6.0			
23	2.5	1.5	2.0	7.5	4.0	5.5	---	5.5	---			
24	3.5	1.5	2.5	7.5	4.5	5.5	---	---	---			
25	4.0	3.0	3.5	7.0	4.5	5.5	---	---	---			
26	5.0	3.5	4.0	5.5	4.5	5.0	---	---	---			
27	4.5	3.5	4.0	4.5	3.5	4.0	---	---	---			
28	5.5	3.0	4.0	5.0	3.0	4.0	---	---	---			
29	---	---	---	5.5	3.5	4.5	---	---	---			
30	---	---	---	6.0	4.5	5.0	---	---	---			
31	---	---	---	6.0	4.5	5.0	---	---	---			
MONTH	5.5	1.0	2.5	7.5	1.5	4.5	8.5	4.0	5.5			
YEAR	10.5	.0	3.5									

12392000 CLARK FORK AT WHITEHORSE RAPIDS, NEAR CABINET, ID

LOCATION.--Lat 48°05'18", long 116°04'16", in SW¼NW¼ sec.27, T.55 N., R.3 E., Bonner County, Hydrologic Unit 17010213, on right bank, 0.8 mi (1.3 km) downstream from Cabinet Gorge Dam at cableway, 2.1 mi (3.4 km) downstream from Blue Creek, 6.1 mi (9.8 km) southeast of Clark Fork, and at mile 149.1 (239.9 km). Discharge computed at Whitehorse Rapids, 2.3 mi (3.7 km) downstream.

DRAINAGE AREA.--22,073 mi² (57,169 km²), based on revised area of 22,067 mi² (57,154 km²) for site 0.4 mi (0.6 km) upstream.

PERIOD OF RECORD.--September 1928 to current year. Prior to October 1952, published as "near Heron, MT."

REVISED RECORDS.--WSP 1182: 1936. WSP 1736: 1931, 1936(m), 1937.

GAGE.--Water-stage recorder. Datum of gage is 2,060.00 ft (627.888 m) National Geodetic Vertical Datum of 1929, levels by Washington Water Power Co. See WSP 1934 for history of changes made prior to Sept. 30, 1952. Water-stage recorder at site 0.4 mi (0.6 km) upstream at datum 60.00 ft (18.288 m) lower Oct. 1, 1952, to Sept. 30, 1964, and at present datum Oct. 1, 1964, to May 21, 1973.

REMARKS.--Records good except those for winter period, which are fair. Flow regulated by Hungry Horse Reservoir and Flathead Lake. Extreme diurnal fluctuation caused by powerplant at Cabinet Gorge Dam. Diversions above station for irrigation of about 354,000 acres (143,000 hm²). Discharge measurements indicate about 800 ft³/s (22.7 m³/s) ground-water inflow between Cabinet Gorge Dam and Whitehorse Rapids. Records given herein represent flow at Whitehorse Rapids, computed by adding 600 ft³/s (17.0 m³/s) to observed flows at the measuring cableway, and are considered comparable to records at former site near Heron, except for minor surface inflow from additional drainage area. To determine flow at Cabinet Gorge Dam, 800 ft³/s (22.7 m³/s) should be deducted from discharges published herein.

AVERAGE DISCHARGE.--51 years, 22,380 ft³/s (633.8 m³/s), 16,210,000 acre-ft/yr (20.0 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 153,000 ft³/s (4,330 m³/s) May 29 to June 1, 1948; maximum gage height, 50.97 ft (15.536 m) May 31, 1948, site and datum then in use; minimum observed, 270 ft³/s (7.65 m³/s) Aug. 12, 1952 (discharge measurement), at sites in use since October 1952, during filling of Cabinet Gorge reservoir; minimum daily since reservoir filled, 762 ft³/s (21.6 m³/s) Sept. 2, 1962.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1894 reached a discharge of 195,000 ft³/s (5,520 m³/s), from floodmark, elevation, 2,137.1 ft (651.39 m), at site about 4 mi (6 km) upstream and 0.1 mi (0.2 km) below "near Heron" site.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 83,500 ft³/s (2,360 m³/s) May 25, gage height, 22.27 ft (6.788 m); minimum, 1,020 ft³/s (28.9 m³/s) Mar. 25, Sept. 4, gage height, 4.17 ft (1.271 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13500	15300	12000	6810	22000	14600	15300	34400	56600	28700	17600	11900
2	15200	13900	9670	13000	19900	11000	12700	35700	53200	26000	18200	11500
3	17300	16400	12900	11100	16800	7300	10900	35200	50300	25600	20400	10600
4	13300	17300	17400	13800	7020	7720	14400	35700	50300	25900	5430	11600
5	15800	18700	19900	16100	10500	15600	15100	35700	51200	27300	6670	11500
6	12700	18300	21400	12800	13400	10000	16600	37800	53600	29700	16100	12600
7	13700	10800	20500	12800	12000	7150	13900	49400	52500	27000	17800	16000
8	7660	17000	18800	15900	14200	6880	4020	51700	49500	24200	18700	11400
9	11200	21500	15500	14700	9240	10700	15800	49400	40900	29400	13200	8690
10	14900	23500	15300	13700	6470	8240	18300	44800	40000	25700	14100	15200
11	12900	21200	16500	11100	3960	6880	16400	44400	41800	25200	4340	13900
12	14800	17500	14000	11800	9290	9320	17300	43500	41400	19100	3780	15500
13	11900	20100	17800	8180	12500	8520	17900	51800	43600	23800	6250	15200
14	11800	17700	14000	14900	13400	11200	17200	51100	45700	16600	6580	15300
15	9030	16900	20400	17400	15600	8380	9680	46800	52800	7870	11700	8430
16	13800	10300	18800	18300	14100	9140	17100	52400	51500	25500	15200	5680
17	14100	15000	14700	17100	16500	10800	16700	53600	51500	27500	14200	9410
18	12200	11800	18300	19900	12400	8790	19100	53400	48400	23800	9310	9600
19	12200	18100	16600	14600	16300	20800	21100	53700	45500	26500	5110	8630
20	11600	20000	14100	10800	15800	13500	23500	53600	41200	25300	14600	10900
21	15600	16000	13000	13300	9530	19400	19700	54100	43200	7670	23100	15600
22	16500	18200	12800	21100	7160	16500	11800	54200	47200	3970	10100	5140
23	15800	10500	16100	19000	13300	11600	20300	55200	51000	22900	13400	6730
24	14900	13500	17800	14800	12000	7300	25400	66000	46500	23300	22400	8390
25	19300	16100	15400	16800	8860	12300	22500	75300	44500	26600	7320	6030
26	18800	13600	18700	18000	8550	14600	25000	78200	45000	26200	4160	5980
27	15900	21700	15200	13700	10600	15900	25500	79400	39400	14200	16200	7970
28	12800	23000	19800	13000	8150	19100	28500	79500	35800	5030	14800	7960
29	17600	14400	17500	19200	---	12000	27600	78300	30600	4530	14200	6770
30	19200	17600	19500	22500	---	14900	33500	74200	24800	15700	12900	5770
31	18300	---	23600	19800	---	13800	---	68100	---	16900	12200	---
TOTAL	444290	505900	517970	465990	339530	363920	552800	1676600	1369500	657670	390050	309900
MEAN	14330	16860	16710	15030	12130	11740	18430	54080	45650	21220	12580	10330
MAX	19300	23500	23600	22500	22000	20800	33500	79500	56600	29700	23100	16000
MIN	7660	10300	9670	6810	3960	6880	4020	34400	24800	3970	3780	5140
AC-FT	881200	1003000	1027000	924300	673500	721800	1096000	3326000	2716000	1304000	773700	614700

CAL YR 1978 TOTAL 6703620 MEAN 23850 MAX 69100 MIN 5480 AC-FT 17260000
WTR YR 1979 TOTAL 7594120 MEAN 20810 MAX 79500 MIN 3780 AC-FT 15060000

Smaller reservoirs in Pend Oreille River basin in Montana

12325000 GEORGETOWN LAKE.--Lat 46°12'55", long 113°16'40", in SW¼ sec.6, T.5 N., R.13 W., Granite County, Hydrologic Unit 17010202, at dam on Flint Creek, 2 mi (3 km) west of Southern Cross, 8 mi (13 km) south of Philipsburg, and at mile 38.8 (62.4 km). DRAINAGE AREA, 50.1 mi^2 (129.8 km^2). PERIOD OF RECORD, October 1939 to current year. May to July 1948 daily elevations and contents, published in WSP 1080. Records of daily elevations since October 1940 are in files of Helena district office. Nonrecording gage read daily. Datum of gage is at National Geodetic Vertical Datum of 1929 (levels by The Montana Power Co.).

Reservoir is formed by masonry and concrete dam. Storage began about 1905 to store water for pumpage into Warm Springs Creek for use of reduction works of Anaconda Copper Mining Co. at Anaconda, or for release through Flint Creek for irrigation, power development, and recreation. Usable capacity, 31,040 acre-ft (38.3 hm^3) between elevation 6,398.00 ft (1,950.110 m), bottom of outlet pipes, and 6,429.50 ft (1,959.712 m), maximum design level. Figures given herein represent usable contents. Records furnished by The Montana Power Co. REVISED RECORDS, WSP 1316: Drainage area.

EXTREMES FOR PERIOD OF RECORD: Maximum contents observed, 31,640 acre-ft (39.0 hm^3) Oct. 14, Dec. 2, 1975, elevation, 6,429.70 ft (1,959.773 m); minimum observed, 15,990 acre-ft (19.7 hm^3) Apr. 28, 29, 1957, elevation, 6,424.15 ft (1,958.081 m).

EXTREMES FOR CURRENT YEAR: Maximum contents observed, 30,740 acre-ft (37.9 hm^3) on many days in December, elevation, 6,429.40 ft (1,959.681 m); minimum observed, 24,860 acre-ft (30.7 hm^3) Mar. 19, 20, elevation, 6,427.38 ft (1,959.065 m).

12332500 EAST FORK ROCK CREEK RESERVOIR.--Lat 46°07'54", long 113°22'48, in NE¼ sec.6, T.4 N., R.14 W., Granite County, Hydrologic Unit 17010202, at dam on East Fork Rock Creek, 14 mi (23 km) southwest of Philipsburg, and at mile 9.7 (15.6 km). DRAINAGE AREA, 30.3 mi^2 (78.5 km^2). PERIOD OF RECORD, October 1939 to current year (seasonal records only for most years 1946-60, 1964, 1968). Records for October 1955 to April 1956, published in WSP 1446, have been found to be in error and should not be used. May to August 1948 scattered daily contents, published in WSP 1080. Elevations determined by hand levels from reference points at indefinite intervals. Datum of gage is at National Geodetic Vertical Datum of 1929 (levels by Montana Department of Natural Resources and Conservation.)

Reservoir is formed by earthfill dam with concrete spillway completed in 1937; storage began in 1936. Usable capacity, 16,040 acre-ft (19.8 hm^3) between elevation 5,990.0 ft (1,825.75 m), bottom of outlet, and 6,055.5 ft (1,845.72 m), spillway crest. Dead storage unknown. Figures given herein represent usable contents. Water is used for irrigation and recreation. Records furnished by Montana Department of Natural Resources and Conservation. REVISED RECORDS, WSP 1316: Drainage area.

EXTREMES FOR PERIOD OF RECORD: Maximum contents observed, in excess of 16,000 acre-ft (19.7 hm^3) when reservoir was full and spilling at times in several years; no storage at times in 1955, 1961, 1966, 1973, 1977, and 1978.

EXTREMES FOR CURRENT YEAR: Maximum contents observed, 16,040 acre-ft (19.8 hm^3), May 15, elevation, 6,055.5 ft (1,845.72 m); minimum observed, 4,080 acre-ft (5.03 hm^3) Sept. 30, elevation, 6,017 ft (1,833.9 m), but may have been less during winter months.

12336500 NEVADA LAKE.--Lat 46°48'06", long 112°48'42", in NE¼ sec.14, T.12 N., R.10 W., Powell County, Hydrologic Unit 17010203, at dam on Nevada Creek, 7 mi (11 km) west of Finn. DRAINAGE AREA, 145 mi^2 (376 km^2). PERIOD OF RECORD, October 1939 to current year (incomplete 1948, 1950-1958, 1961-62, 1965-66, 1969-70). Nonrecording gage usually read at or near end of month. Prior to October 1976, published as Nevada Creek Reservoir near Finn. Prior to 1961, elevations determined by hand level from spillway. Datum of gage is at National Geodetic Vertical Datum of 1929 (levels by Montana Department of Natural Resources and Conservation).

Reservoir is formed by earthfill dam with concrete spillway completed in 1938. Usable capacity, 12,640 acre-ft (15.6 hm^3) between elevation, 4,551.5 ft (1,387.30 m), bottom of outlet, and 4,616.0 ft (1,406.96 m), spillway crest. Dead storage, 12 acre-ft (14,800 m^3) below elevation, 4,551.5 ft (1,387.30 m). Figures given herein represent usable contents. Water is used for irrigation and recreation. Records furnished by Montana Department of Natural Resources and Conservation.

EXTREMES FOR PERIOD OF RECORD: Maximum contents observed, 13,520 acre-ft (16.7 hm^3) June 3, 1953, elevation, 4,618.3 ft (1,407.66 m); no storage Aug. 14 to Oct. 31, 1973, Sept. 18, 1977.

EXTREMES FOR CURRENT YEAR: Maximum contents observed, 12,910 acre-ft (15.9 hm^3) June 1, elevation, 4,616.7 ft (1,407.17 m); minimum contents, 2,480 acre-ft (3.06 hm^3) Oct. 30, elevation, 4,580.5 ft (1,396.14 m).

12342000 PAINTED ROCKS LAKE.--Lat 45°43'06", long 114°16'45", in NE¼SE¼ sec.26, T.1 S., R.22 W., Ravalli County, Hydrologic Unit 17010205, at dam on West Fork Bitterroot River, 7 mi (11 km) upstream from Nez Perce Creek, 16.5 mi (26.5 km) southwest of Conner, 23 mi (37 km) south of Darby, and at mile 19.8 (31.0 km). DRAINAGE AREA, 317 mi^2 (821 km^2). PERIOD OF RECORD, June 1940 to current year (incomplete 1956-58, 1960-61). Prior to December 1958, figures of contents may be total or usable. Records for August 1954, published only in WSP 1736. May to September 1948 scattered daily contents, published in WSP 1080. Prior to October 1959, published as West Fork Bitterroot River Reservoir near Conner. Elevations determined at or near end of month by hand levels from spillway or from staff gage on right wingwall above spillway. Prior to 1959, elevations determined by measuring from floor of control tower. Datum of gage is at National Geodetic Vertical Datum of 1929.

Reservoir is formed by earthfill dam with concrete spillway completed in 1940. Usable capacity, 31,700 acre-ft (39.1 hm^3) between elevation 4,625.5 ft (1,409.85 m), bottom of outlet, and 4,725.5 ft (1,440.33 m) spillway crest. Dead storage, 656 acre-ft (809,000 m^3) below elevation 4,625.5 ft (1,409.85 m). Figures given herein represent usable contents. Water is used for irrigation and recreation. Records furnished by Montana Department of Natural Resources and Conservation prior to December 1958; most monthly readings made by Geological Survey personnel thereafter. REVISED RECORDS, WSP 1316: Drainage area.

EXTREMES FOR PERIOD OF RECORD: Maximum contents observed, 33,930 acre-ft (41.8 hm^3) June 18, 1974, elevation, 4,728.7 ft (1,441.31 m); no storage October 1940 to January 1941, March 1952, March, April 1954, Apr. 25, 1973. winter of 1973-74, 1974-75, November, December 1976.

EXTREMES FOR CURRENT YEAR: Maximum contents observed, 33,370 acre-ft (41.1 hm^3) May 24, elevation, 4,727.9 ft (1,441.06 m); minimum observed, 12,820 acre-ft (15.8 hm^3) Mar. 27, elevation, 4,687.4 ft (1,428.72 m).

Smaller Reservoirs in Pend Oreille River basin in Montana--Continued

12344500 LAKE COMO.--Lat 46°03'40", long 114°14'00", in NE¼NW¼ sec.32, T.4 N., R.21 W., Ravalli County, Hydrologic Unit 17010205, at dam on Rock Creek, 4 mi (6 km) northwest of Darby, and at mile 3.6 (5.8 km). DRAINAGE AREA, 54.6 mi^2 (141.4 km^2). PERIOD OF RECORD, October 1939 to current year. April to August 1948 scattered daily gage height and contents, published in WSP 1080. Prior to October 1967, published as Como Lake. Nonrecording gage read at or near end of month in winter and more often during irrigation season but only monthend figures supplied. Datum of gage is at National Geodetic Vertical Datum of 1929.

Reservoir is formed by earthfill dam with concrete spillway completed in 1909. Usable capacity, 34,920 acre-ft (43.1 hm^3) between elevation 4,188.0 ft (1,276.50 m), bottom of outlet, and 4,242.5 ft (1,293.11 m), spillway crest. Dead storage unknown below elevation 4,188.0 ft (1,276.50 m), elevation of natural lake outlet. Figures given herein represent usable contents. Water is used for irrigation and recreation. Records furnished by Bitterroot Irrigation District. REVISED RECORDS, WSP 1316: Drainage area.

EXTREMES FOR PERIOD OF RECORD: Maximum contents observed, 36,920 acre-ft (45.5 hm^3) June 30, 1957, June 30, 1960, July 1, 1963, June 1, 1964, elevation, 4,244.5 ft (1,293.72 m); no storage at times in several years.

EXTREMES FOR CURRENT YEAR: Maximum contents observed, 35,120 acre-ft (43.3 hm^3) June 30, elevation, 4,242.7 ft (1,293.17 m); minimum observed, 481 acre-ft (590,000 m^3) Sept. 30, elevation, 4,191.0 ft (1,277.42 m).

CAMAS RESERVOIRS.--A group of four reservoirs in the Little Bitterroot River basin operated for irrigation and recreation. Nonrecording gages are set to approximate National Geodetic Vertical Datum of 1929 and are read on the last day of the month. Figures given herein represent usable contents. Records furnished by Bureau of Indian Affairs. May to July 1948 scattered daily contents for individual reservoirs, published in WSP 1080.

12372500 LITTLE BITTERROOT LAKE.--Lat 48°05'34", long 114°14'51", in SE¼SE¼SW¼ sec.16, T.27 N., R.24 W., Flathead County, Hydrologic Unit 17010212, at dam on Little Bitterroot River, 2 mi (3 km) southwest of Marion and at mile 70.3 (113.1 km). DRAINAGE AREA, 31.8 mi^2 (82.4 km^2). PERIOD OF RECORD, December 1939, April 1940, September 1940 to current year.

Reservoir is formed by earthfill dam; storage began in 1918. Usable capacity, 26,400 acre-ft (32.6 hm^3) between elevation 3,897.98 ft (1,188.104 m) and 3,906.48 ft (1,190.695 m). No dead storage. Prior to 1960, usable capacity, 24,000 acre-ft (29.6 hm^3).

EXTREMES FOR PERIOD OF RECORD: Maximum contents observed, 26,880 acre-ft (33.2 hm^3) May 31, 1959, elevation, 3,906.60 ft (1,190.732 m); no storage at times in 1939-46.

EXTREMES FOR CURRENT YEAR: Maximum contents observed, 11,600 acre-ft (14.3 hm^3) May 31, June 30, elevation, 3,902.38 ft (1,189.445 m); minimum observed, 5,000 acre-ft (6.17 hm^3) Nov. 30, Dec. 31, elevation, 3,900.18 ft (1,188.775 m).

12373500 HUBBART RESERVOIR.--Lat 47°55'43", long 114°43'53", in [illegible] NE¼ sec.18, T.25 N., R.24 W., Flathead County, Hydrologic Unit 17010212, at dam on Little Bitterroot River, 9 mi (15 km) northwest of Niarada and at mile 55.8 (89.8 km). DRAINAGE AREA, 114 mi^2 (295 km^2). PERIOD OF RECORD, December 1939, April 1940, September 1940 to current year.

Reservoir is formed by concrete variable-radius dam; storage began in 1924. Usable capacity, 12,120 acre-ft (14.9 hm^3) between elevation 3,140.0 ft (957.07 m) and 3,210.0 ft (981.51 m). No dead storage.

EXTREMES FOR PERIOD OF RECORD: Maximum contents observed, 13,050 acre-ft (16.1 hm^3) May 31, 1959, elevation, 3,220.92 ft (987.736 m); no storage September to December 1959, Sept. 30, Oct. 1, 1973.

EXTREMES FOR CURRENT YEAR: Maximum contents observed, 12,220 acre-ft (15.1 hm^3) Apr. 30, elevation, 3,219.2 ft (981.21 m); minimum observed, 3,690 acre-ft (4.55 hm^3) Sept. 30, elevation, 3,194.5 ft (973.68 m).

12375000 UPPER DRY FORK RESERVOIR.--Lat 47°44'55", long 114°40'53", in SE¼SE¼SW¼ sec.16, T.23 N., R.24 W., Sanders County, Hydrologic Unit 17010212, at dam on Dry Fork Creek, 4 mi (6 km) northwest of Lonepine. DRAINAGE AREA, 8.53 mi^2 (22.09 km^2). PERIOD OF RECORD, April 1940, September 1940 to current year.

Reservoir is formed by earthfill dam; storage began in 1940. Usable capacity, 2,810 acre-ft (3.46 hm^3) between elevation 2,900.0 ft (883.92 m) and 2,928.5 ft (892.61 m). No dead storage. Prior to 1960, usable capacity, 2,700 acre-ft (3.33 hm^3). Natural flow of Alder Creek in Thompson River basin is diverted in SW¼ sec.16, T.23 N., R.25 W., and carried by inter-basin canal to upper Dry Fork Creek for storage in this reservoir.

EXTREMES FOR PERIOD OF RECORD: Maximum contents observed, 2,940 acre-ft (3.63 hm^3) June 30, 1971, June 30, 1976, elevation, 2,928.9 ft (892.73 m); no storage at times in 1940, 1942, 1943.

EXTREMES FOR CURRENT YEAR: Maximum contents observed, 2,520 acre-ft (3.11 hm^3) June 30, elevation, 2,927.5 ft (892.30 m); minimum observed, 864 acre-ft (1.07 hm^3) Nov. 30, Dec. 31, elevation, 2,919.4 ft (889.83 m).

12375500 DRY FORK RESERVOIR.--Lat 47°42'00", long 114°40'02", in SW¼NW¼NW¼ sec.3, T.22 N., R.24 W., Sanders County, Hydrologic Unit 17010202, at dam on Dry Fork Creek, 1 mi (2 km) west of Lonepine. DRAINAGE AREA, 17.8 mi^2 (46.1 km^2). PERIOD OF RECORD, December 1939, April 1940, September 1940 to current year. Records published in WSP 1316 were listed in error and should not be used.

Reservoir is formed by earthfill dam; storage began in 1921. Usable capacity, 3,860 acre-ft (4.76 hm^3) between elevation 2,830.5 ft (862.74 m) and 2,856.3 ft (870.60 m). No dead storage. Prior to 1960, usable capacity, 4,000 acre-ft (4.93 hm^3).

EXTREMES FOR PERIOD OF RECORD: Maximum contents observed, 4,080 acre-ft (5.03 hm^3) Apr. 30, 1942, elevation, 2,856.91 ft (870.786 m); no storage Aug. 31, 1944, Aug. 31, Sept. 30, 1946, Oct. 31, 1951.

EXTREMES FOR CURRENT YEAR: Maximum contents observed, 3,930 acre-ft (4.85 hm^3) June 30, elevation, 2,856.5 ft (870.66 m); minimum observed, 803 acre-ft (990,000 m^3) Sept. 30, elevation, 2,843.4 ft (866.67 m).

Smaller reservoirs in Pend Oreille River basin in Montana--Continued

MISSION VALLEY RESERVOIRS.--A group of eight reservoirs, in an area east of and tributary to Flathead River and between Flathead Lake and Jocko River, Lake County, Hydrologic Unit 17010212, is operated for irrigation. PERIOD OF RECORD, December 1939, September 1940 to current year. Nonrecording gages are set to approximate National Geodetic Vertical Datum of 1929, and are read on the last day of the month. Figures given herein represent usable contents. Records furnished by Bureau of Indian Affairs. April to July 1948 monthend contents and daily maximums for individual reservoirs, published in WSP 1080.

12371000 TURTLE LAKE.--Lat 47°40'19", long 114°04'32", in SW¼NW¼NE¼ sec.18, T.22 N., R.19 W., at outlet works 4 mi (6 km) southeast of Polson, fed entirely by various canals; storage began in 1932. Prior to October 1968, published as "Twin Reservoir." Usable capacity, 899 acre-ft (1.11 hm^3) between elevation 3,061.0 ft (932.99 m) and 3,090.5 ft (941.98 m). No dead storage.
EXTREMES FOR PERIOD OF RECORD: **Maximum** contents observed, 899 acre-ft (1.11 hm^3) June 30, 1956, June 30, 1964, elevation, 3,090.5 ft (941.98 m); no storage at times in July 1941, August, September 1944, October 1957, July, August, September 1977.
EXTREMES FOR CURRENT YEAR: **Maximum** contents observed, 744 acre-ft (920,000 m^3) May 31, elevation, 3,088.0 ft (941.22 m); **minimum** observed, 113 acre-ft (140,000 m^3) Sept. 30, elevation, 3,069.0 ft (935.43 m).

12376700 LOWER CROW RESERVOIR.--Lat 47°30'09", long 114°13'35", in SW¼SE¼SE¼ sec.11, T.20 N., R.21 W., at outlet works on Crow Creek, 5.2 mi (8.4 km) northwest of Charlo, and at mile 3.44 (5.53 km); storage began in 1933. Usable capacity, 10,350 acre-ft (12.8 hm^3) between elevation 2,800 ft (853.4 m) and 2,877.0 ft (876.91 m). No dead storage.
EXTREMES FOR PERIOD OF RECORD: **Maximum** contents observed, 10,770 acre-ft (13.3 hm^3) May 21, 22, 1948, elevation, 2,878.2 ft (877.28 m); no storage Sept. 30, 1963.
EXTREMES FOR CURRENT YEAR: **Maximum** contents observed, 10,250 acre-ft (12.6 hm^3) May 31, elevation, 2,876.7 ft (876.82 m); **minimum** observed, 5,670 acre-ft (6.99 hm^3) Jan. 31, elevation, 2,860.0 ft (871.73 m).

12377200 MISSION RESERVOIR.--Lat 47°18'54", long 114°01'15", in NW¼SW¼SE¼ sec.15, T.18 N., R.19 W., at outlet works on Mission Creek, 4 mi (6 km) east of St. Ignatius and at mile 16.7 (26.9 km); storage began in 1935. Usable capacity, 7,250 acre-ft (8.94 hm^3) between elevation 3,340.7 ft (1,018.25 m) and 3,406.0 ft (1,038.15 m).
EXTREMES FOR PERIOD OF RECORD: **Maximum** contents observed, 8,370 acre-ft (10.3 hm^3) June 30, 1970, June 30, 1976, elevation, 3,409.8 ft (1,039.31 m); no storage at times during September 1949, February, March, 1964.
EXTREMES FOR CURRENT YEAR: **Maximum** contents observed, 8,010 acre-ft (9.88 hm^3) June 30, elevation, 3,408.9 ft (1,039.03 m); **minimum** observed, 1,150 acre-ft (1.42 hm^3) Sept. 30, elevation, 3,380.0 ft (1,030.22 m).

12377300 ST. MARYS LAKE.--Lat 47°15'58", long 113°56'08", in SW¼NE¼NE¼ sec.6, T.17 N., R.18 W., at outlet works on Dry Creek, 8 mi (13 km) southwest of St. Ignatius, fed by water diverted from Jocko River; storage began in 1919. Prior to October 1968, published as "Tabor Reservoir." Usable capacity, 23,300 acre-ft (28.7 hm^3) between elevation 3,911.5 ft (1,192.23 m) and 4,025.0 ft (1,226.82 m), not including contents of natural lake. No dead storage.
EXTREMES FOR PERIOD OF RECORD: **Maximum** contents observed, 23,510 acre-ft (29.0 hm^3) June 30, 1976, June 30, 1978, elevation, 4,025.7 ft (1,227.03 m); no storage Sept. 30, 1969.
EXTREMES FOR CURRENT YEAR: **Maximum** contents observed, 22,970 acre-ft (28.3 hm^3) June 30, elevation, 4,023.8 ft (1,226.45 m); **minimum** observed, 1,100 acre-ft (1.36 hm^3) Sept. 30, elevation, 3,918.7 ft (1,194.42 m).

12377900 PABLO RESERVOIR.--Lat 47°38'25", long 114°08'33", in SW¼SW¼NE¼ sec.27, T.22 N., R.20 W., at outlet works 3 mi (5 km) south of Polson, 3 mi (5 km) northwest of Pablo, fed entirely by various canals, some water supplied by Flathead pumping plant; storage began in 1914. Usable capacity, 27,100 acre-ft (33.4 hm^3) between elevation 3,179 ft (969.0 m), gate sill, and 3,210.2 ft (978.47 m). No dead storage.
EXTREMES FOR PERIOD OF RECORD: **Maximum** contents observed, 28,120 acre-ft (34.7 hm^3) June 30, 1968, elevation, 3,210.77 ft (978.643 m); no storage at times in several years.
EXTREMES FOR CURRENT YEAR: **Maximum** contents observed, 27,100 acre-ft (33.4 hm^3) May 31, elevation, 3,210.28 ft (978.493 m); **minimum** observed, 4,590 acre-ft (5.66 hm^3) Sept. 30, elevation, 3,193.50 ft (973.379 m).

12378200 McDONALD RESERVOIR.--Lat 47°25'31", long 113°59'27", in SE¼NE¼NE¼ sec.10, T.19 N., R.19 W., at outlet works on Post Creek, 9 mi (15 km) east of Charlo, and at mile 12.4 (20.0 km); storage began in 1919. Usable capacity, 8,220 acre-ft (10.1 hm^3) between elevation 3,545.0 ft (1,080.52 m), and 3,598.0 ft (1,096.67 m), not including contents of natural lake. No dead storage.
EXTREMES FOR PERIOD OF RECORD: **Maximum** contents observed, 8,270 acre-ft (10.2 hm^3) June 30, 1977, elevation, 3,598.2 ft (1,096.73 m); no storage Aug. 31, 1961, Aug. 30, 1966, Oct. 31, 1971, Apr. 30, 1972.
EXTREMES FOR CURRENT YEAR: **Maximum** contents observed, 8,220 acre-ft (10.1 hm^3) May 31, elevation, 3,598.0 ft (1,096.67 m); **minimum** observed, 2,570 acre-ft (3.17 hm^3) Aug. 31, elevation, 3,566.0 ft (1,086.92 m).

12379700 KICKING HORSE RESERVOIR.--Lat 47°27'25", long 114°04'35", in SE¼NE¼NE¼ sec.36, T.20 N., R., 20 W., at outlet works 4 mi (6 km) northeast of Charlo, fed entirely by various canals; storage began in 1930. Usable capacity, 8,350 acre-ft (10.3 hm^3) between elevation 3,042.0 ft (927.20 m) and 3,061.94 ft (933.279 m). Dead storage, 70 acre-ft (86,300 m^3) below elevation 3,042.0 ft (927.20 m).
EXTREMES FOR PERIOD OF RECORD: **Maximum** contents observed, 10,320 acre-ft (12.7 hm^3) June 30, 1976, elevation, 3,064.4 ft (934.03 m); no storage Aug. 31, 1961.
EXTREMES FOR CURRENT YEAR: **Maximum** contents observed, 9,040 acre-ft (11.1 hm^3) May 31, elevation, 3,062.8 ft (933.54 m); **minimum** observed, 2,820 acre-ft (3.48 hm^3) Aug. 31, elevation, 3,053.3 ft (930.65 m).

Smaller reservoirs in Pend Oreille River basin in Montana--Continued

MISSION VALLEY RESERVOIRS--Continued

12380000 NINEPIPE RESERVOIR.--Lat 47°27'20", long 114°08'08", in NE1/4 NW1/4 NW1/4 sec.34, T.20 N., R.20 W., at outlet works 2 mi (3 km) northeast of Charlo, fed entirely by various canals; storage began in 1911. Usable capacity, 14,870 acre-ft (18.3 hm^3) between elevation 2,895.4 ft (882.52 m) and 3,010.0 ft (917.45 m). No dead storage.

EXTREMES FOR PERIOD OF RECORD: Maximum contents observed, 16,950 acre-ft (20.9 hm^3) June 30, 1974, elevation, 3,012.3 ft (918.15 m); no storage Aug. 31, 1961.

EXTREMES FOR CURRENT YEAR: Maximum contents observed, 15,000 acre-ft (18.5 hm^3) Apr. 30, elevation, 3,010.1 ft (917.48 m); minimum obseved, 2,180 acre-ft (2.69 hm^3) Sept. 30, elevation, 2,998.5 ft (913.94 m).

12380500 LOWER JOCKO LAKE.--Lat 47°12'10", long 113°45'35", in NW1/4 SW1/4 NW1/4 sec.27, T.17 N., R.17 W., Missoula County, Hydrologic Unit 17010212, at dam on Jocko River, 15 mi (24 km) east of Arlee, and at mile 39.3 (63.1 km). DRAINAGE AREA, 7.39 mi^2 (19.14 km^2). PERIOD OF RECORD, December 1939, April 1940, September, 1940, to current year (no winter records most years since 1947). Records for November 1957, published only in WSP 1736. May to July 1948 scattered daily contents, published in WSP 1080. Nonrecording gage read at end of month. Datum of gage is at National Geodetic Vertical Datum of 1929 (levels by Bureau of Indian Affairs).

Reservoir is formed by earthfill dam; storage began in 1937. Usable capacity, 5,380 acre-ft (7.87 hm^3) between elevation 4,267.0 ft (1,300.58 m) and 4,340.0 ft (1,322.83 m). Prior to 1960, usable capacity, 7,600 acre-ft (9.37 hm^3) at elevation 4,350 ft (1,325.9 m). Dead storage unknown below elevation 4,267 ft (1,300.6 m), elevation of natural lake outlet. Transmountain diversion takes water from Placid Creek in Clearwater River basin in SW1/4 sec.29, T.17 N., R.16 W., to Upper Jocko Lake, thence to Lower Jocko Lake. Some water may then be diverted to St. Mary's Lake for use in the Mission Valley. Figures given herein represent usable contents. Water is used for irrigation and recreation. Records furnished by Bureau of Indian Affairs.

EXTREMES FOR PERIOD OF RECORD: Maximum contents observed, 6,700 acre-ft (8.26 hm^3) June 9, 1948, elevation 4,342.7 ft (1,323.65 m); no storage at times.

EXTREMES FOR CURRENT YEAR: Maxium contents observed, 4,980 acre-ft (6.14 hm^3) June 30, elevation, 4,327.4 ft (1,318.99 m); no storage most of year.

12390000 THOMPSON FALLS RESERVOIR.--Lat 47°35'42", long 115°21'36", in NE1/4 sec.7, T.21 N., R.29 W., Sanders County, Hydrologic Unit 17010213, at dam on Clark Fork at Thompson Falls, at mile 208.0 (334.7 km). DRAINAGE AREA, 20,968 mi^2 (54,307 km^2). PERIOD OF RECORD, October 1939 to current year. Nonrecording gage is read several times daily but only monthend figures supplied. Datum of gage is at National Geodetic Vertical Datum of 1929 (levels by The Montana Power Company).

Reservoir is formed by two concrete dams, first generator installed July 1915. Usable capacity, 14,970 acre-ft (18.5 hm^3) between elevation 2,380.0 ft (725.42 m), spillway crest, and 2,396.0 ft (730.30 m), top of flashboards. Dead storage unknown. Figures given herein represent usable contents. Water is used for power development and recreation. Records furnished by The Montana Power Company.

EXTREMES FOR PERIOD OF RECORD: Maximum contents observed, 16,060 acre-ft (19.8 hm^3) Nov. 30, 1949, elevation, 2,396.7 ft (730.51 m); no storage July 31, 1958.

EXTREMES FOR CURRENT YEAR: Maximum contents observed, 14,970 acre-ft (18.5 hm^3) July 31, elevation, 2,396.0 ft (730.30 m); minimum observed, 1,380 acre-ft (1.70 hm^3) June 30, elevation, 2,382.5 ft (726.19 m).

12391300 NOXON RAPIDS RESERVOIR.--Lat 47°57'38", long 115°44'00', in NE1/4 SW1/4 SW1/4 sec.33, T.26 N., R.32 W., Sanders County, Hydrologic Unit 17010213, at dam on Clark Fork, 3 mi (5 km) southeast of Noxon, 7.2 mi (11.6 km) upstream from Bull River, and at mile 169.7 (273.0 km). DRAINAGE AREA, 21,833 mi^2 (56,547 km^2). PERIOD OF RECORD, April 1959 to current year. Prior to October 1962, published as "Noxon Reservoir." Record of daily elevation on file in Helena district office. Water-stage recorder, midnight readings. Datum of gage is at National Geodetic Vertical Datum of 1929 (levels by the Washington Water Power Company).

Reservoir is formed by concrete and earthfill dam, construction began in 1955, completed in 1959. Storage began Apr. 3, 1959. Usable capacity, 334,600 acre-ft (413 hm^3) between elevation 2,270.00 ft (691.896 m), minimum operating level, and 2,331.00 ft (710.489 m). Figures given herein represent usable contents. Water is used for power and production, flood control, and recreation. Records furnished by The Washington Water Power Company.

EXTREMES FOR PERIOD OF RECORD: Maximum contents, 335,400 acre-ft (414 hm^3) Apr. 7, 1960, elevation 2,331.10 ft (710.519 m); minimum since first filling, 26,380 acre-ft (32.5 hm^3) May 10, 1967, elevation, 2,277.15 ft (694.075 m).

EXTREMES FOR CURRENT YEAR: Maximum contents, 333,100 acre-ft (411 hm^3) June 22, elevation, 2,330.81 ft (710.431 m); minimum 250,200 acre-ft (308 hm^3) May 16, elevation, 2,319.71 ft (707.048 m).

Smaller reservoirs in Pend Oreille River basin in Montana--Continued

Monthend contents, in acre-ft, water year October 1978 to September 1979

Date	Georgetown Lake	East Fork Rock Creek Reservoir	Nevada Lake	Painted Rocks Lake	Lake Como	Camas Reservoir	Mission Valley Reservoirs
Sept. 30	30,680	b 8,900	a 5,470	a26,240	a 6,650	16,720	66,650
Oct. 31	30,570	--	a 2,490	a24,160	6,880	16,390	62,280
Nov. 30	30,450	--	a 2,880	a21,390	7,630	15,960	62,690
Dec. 31	30,680	--	b 2,910	a18,600	8,570	7,340	60,270
Jan. 31	28,720	--	b 2,700	a15,500	9,240	7,560	59,220
Feb. 28	26,130	--	b 3,270	a13,490	9,380	18,460	59,810
Mar. 31	25,020	b14,690	5,770	a13,050	12,790	21,070	61,920
Apr. 30	25,970	b15,470	b10,310	a17,720	16,560	27,040	68,710
May 31	28,660	b14,300	b12,910	a33,090	31,990	29,910	98,360
June 30	30,150	a11,910	b10,920	a31,960	35,120	28,150	94,170
July 31	30,030	b 6,580	b 9,880	a29,840	23,490	22,580	59,060
Aug. 31	29,260	b 5,480	a 6,410	a21,700	16,310	17,240	31,440
Sept. 30	27,830	4,080	b 3,580	a12,850	481	15,990	23,630

Date	Lower Jocko Lake	Thompson Falls Reservoir	Noxon Rapids Reservoir
Sept. 30	0	14,390	327,500
Oct. 31	0	14,540	313,500
Nov. 30	0	11,650	304,000
Dec. 31	-	10,030	282,200
Jan. 31	-	10,880	286,600
Feb. 28	-	10,510	310,300
Mar. 31	-	11,130	320,800
Apr. 30	-	13,960	278,100
May 31	4,600	4,400	325,700
June 30	4,980	14,970	322,700
July 31	2,240	14,100	318,900
Aug. 31	0	14,100	317,400
Sept. 30	0	12,030	327,500

a Interpolated.
b Figure of contents for first day of following month.

As the number of streams on which streamflow information is likely to be desired far exceeds the number of stream-gaging stations feasible to operate at one time, the Geological Survey collects limited streamflow data at sites other than stream-gaging stations. When limited streamflow data are collected on a systematic basis over a period of years for use in hydrologic analyses, the site at which the data are collected is called a partial-record station. Data collected at these partial-record stations are usable in low-flow or floodflow analyses, depending on the type of data collected. In addition, discharge measurements are made at other sites not included in the partial-record program. These measurements are generally made in times of drought or flood to give better areal coverage to those events. Those measurements and others collected for some special reason are called measurements at miscellaneous sites.

Records collected at partial-record stations are presented in a table of annual maximum stage and discharge at crest-stage stations. Discharge measurements made at miscellaneous sites for both low flow and high flow are given in a second table.

Crest-stage partial-record stations

The following table contains annual maximum discharge for crest-stage stations. A crest-stage gage is a device which will register the peak stage occurring between inspections of the gage. A stage-discharge relation for each gage is developed from discharge measurements made by indirect measurements of peak flow or by current meter. The date of the maximum discharge is not always certain, but it is usually determined by comparison with nearby continous-record stations, weather records, or local inquiry. Only the maximum discharge for each water year is given. Information on some lower floods may have been obtained, but is not published herein. The years given in the period of record represent water years for which the annual maximum has been determined.

Annual maximum discharge at crest-stage partial-record stations

Station No.	Station name	Location	Drainage area (mi^2)	Period of record	Date	Annual maximum	
						Gage height (ft)	Discharge (ft^3/s)
Part 6		BIG SHEEP CREEK BASIN					
06013500	Big Sheep Creek below Muddy Creek, near Dell	Lat 44°39'19", long 112°46'41", SW 1/4 NW 1/4 SE 1/4 sec.35, T.13 S., R.10 W., Beaverhead County, Hydrologic Unit 10020001, on left bank 2.2 mi (3.5 km) downstream from Muddy Creek, 6.5 mi (10.5 km) southwest of Dell, and 8.5 mi (13.7 km) upstream of mouth	278	1936[‡] 1946-53[‡] 1960-75 1976-78[‡] 1979	4-17-79	5.14	289
		CLARK CANYON BASIN					
06015430	Clark Canyon near Dillon	Lat 45°00'56", long 112°50'10", in SW 1/4 SW 1/4 sec.28, T.9 S., R.10 W., Beaverhead County, Hydrologic Unit 10020002, at culvert on county road, 0.3 mi (0.5 km) south of Interstate Highway 15 and junction with access road, 1.6 mi (2.6 km) north of Interstate Highway 15 and junction to Clark Canyon Dam, 17.0 mi (27.4 km) southwest of Dillon.	18.0	1969 1974-79	5-29-79	2.35	36
		RUBY RIVER BASIN					
06019400	Sweetwater Creek near Alder	Lat 45°04'39", long 112°13'32", in NW 1/4 SW 1/4 sec.4, T.9 S., R.4 W., Madison County, Hydrologic Unit 10020003, at bridge on county road 0.6 mi (1.0 km) upstream from small reservoir, 3.5 mi (5.6 km) upstream from Belmont Park Ranch, 6.0 mi (9.7 km) southwest of Ruby River bridge, 12.5 mi (20.1 km) southwest of Ruby Reservoir Dam, 18 mi (29 km) south of Alder	81.5	1974-79	5-05-79	3.64	115
06019800	Idaho Creek near Alder	Lat 45°11'51", long 112°08'20", in center of sec.30, T.7 S., R.4 W., Madison County, Hydrologic Unit 10020003, at bridge on county road 9 mi (15 km) south of Alder.	11.0	1960-79	5-28-79	2.21	32

See footnotes at end of table, p. 789.

Annual maximum discharge at crest-stage partial-record stations--Continued

Station No.	Station name	Location	Drainage area (mi^2)	Period of record	Annual maximum Date	Annual maximum Gage height (ft)	Annual maximum Discharge (ft^3/s)
		BIG HOLE RIVER BASIN					
06025100	Quartz Hill Gulch near Wise River	Lat 45°46'35", long 112°51'41", in NE 1/4 SE 1/4 sec.5, T.1 S., R.10 W., Beaverhead County, Hydrologic Unit 10020004, 210 ft (64 m) upstream from State Highway 43, 0.3 mi (0.5 km) west of Dewey, 4.2 mi (6.8 km) east of Wise River.	14.3	1974-79	5-15-79	1.27	5
		FISH CREEK BASIN					
06027700	Fish Creek near Silver Star	Lat 45°46'18", long 112°14'56", in NW 1/4 sec.8, T.1 S., R.5 W., Silver Bow County, Hydrologic Unit 10020005, at bridge on county road, 6 mi (10 km) north of Silver Star.	38.9	1959-79	5-28-79	1.21	110
		TRIBUTARY BETWEEN FISH CREEK AND BOULDER RIVER					
06030300	Jefferson River tributary No. 2 near Whitehall	Lat 45°52'48", long 111°58'28", SE 1/4 sec.33, T.2 N., R.3 W., Jefferson County, Hydrologic Unit 10020005, at culvert on State Highway 281, 6 mi (10 km) east of Whitehall.	4.50	1958-79	5-07-79	a -1.11	b 1
		BOULDER RIVER BASIN					
06031950	Cataract Creek near Basin	Lat 46°17'10", long 112°14'33", in NW 1/4 SW 1/4 sec.9, T.6 N., R.5 W., Jefferson County, Hydrologic Unit 10020006, on bridge on county road 200 ft (61 m) upstream from Big Limber Gulch, 2.1 mi (3.4 km) northeast of Basin.	30.6	1973-79	5-22-79	2.49	280
		MADISON RIVER BASIN					
06038550	Cabin Creek near West Yellowstone	Lat 44°52'19", long 111°20'29", in NW 1/4 SE 1/4 sec.15, T.11 W., R.3 E., Gallatin County, Hydrologic Unit 10020007, at Cabin Creek Campground on U.S. Highway 287, 12.8 mi (20.6 km) west of U.S. Highway 191, 19 mi (31 km) northwest of West Yellowstone.	30.3	1974-79	5-27-79	2.34	385
		GALLATIN RIVER BASIN					
06043300	Logger Creek near Gallatin Gateway	Lat 45°27'17", long 111°14'38", in SW 1/4 sec.28, T.4 S., R.4 E., Gallatin County, Hydrologic Unit 10020008, at culvert on U.S. Highway 191, 10 mi (16 km) south of Gallatin Gateway.	2.48	1959-79	6-13-79	.51	10
06046500	Rocky Creek near Bozeman	Lat 45°39'17", long 110°56'33", in NE 1/4 sec.23, T.2 S., R.6 E., Gallatin County, Hydrologic Unit 10020008, 5 mi (8 km) east of Bozeman.	50.5	1951-53; 1956-57 1959-79	5-06-79	2.47	400

See footnotes at end of table, p. 789.

Annual maximum discharge at crest-stage partial-record stations--Continued

Station No.	Station name	Location	Drainage area (mi²)	Period of record	Date	Annual maximum Gage height (ft)	Annual maximum Discharge (ft³/s)
		SIXTEENMILE CREEK BASIN					
06053050	Lost Creek near Ringling	Lat 46°45'38", long 110°47'08", in SE 1/4 SE 1/4 sec.24, T.6 N., R.7 E., Meagher County, Hydrologic Unit 10030101, on bridge on U.S. Highway 89, 1 mi (2 km) southeast of Ringling.	9.59	1974-79	6-19-79	3.03	70
		DEEP CREEK BASIN					
06056300	Cabin Creek near Townsend	Lat 46°20'00", long 111°13'05", in NW 1/4 sec.27, T.7 N., R.4 E., Broadwater County, Hydrologic Unit 10030101, 100 ft (30 m) upstream from mouth, 14.5 mi (23.3 km) east of Townsend.	11.8	1960-79	5-21-79	.90	1
		SPOKANE CREEK BASIN					
06058700	Mitchell Gulch near East Helena	Lat 46°34'20", long 111°49'21", in NW 1/4 sec.2, T.9 N., R.2 W., Lewis and Clark County, Hydrologic Unit 10030101, at culvert on U.S. Highway 12, 4.7 mi (7.6 km) east of East Helena.	8.09	1959-79	6-18-79	-.21	43
		WEGNER CREEK BASIN					
06071600	Wegner Creek at Craig	Lat 47°04'35", long 111°57'17", in NW1/4 sec.11, T.15 N., R.3 W., Lewis and Clark County, Hydrologic Unit 10030102, at bridge on U.S. Highway 91, 0.9 mi (1.4 km) east of Craig.	35.7	1960-79	4-17-79	.53	78
		DEARBORN RIVER BASIN					
06073600	Black Rock Creek near Augusta	Lat 47°17'28", long 112°09'46", in NE1/4 NW1/4 sec. 30, T.18 N., R.4 W., Lewis and Clark County, Hydrologic Unit 10030102, at culvert 0.1 mi (0.2 km) north of Bowmans Corner on U.S. Highway 287, 17.5 mi (28.2 km) southeast of Augusta.	5.54	1974-79	3-07-79	a7.04	b100
		SMITH RIVER BASIN					
06076700	Sheep Creek near Neihart	Lat 46°47'59", long 110°42'10", in SE1/4 sec.15, T.12 N., R.8 E., Meagher County, Hydrologic Unit 10030103, at culvert on U.S. Highway 89, 10 mi (16 km) south of Neihart.	5.23	1960-79	6-19-79	1.76	70
06077300	Trout Creek near Eden	Lat 47°07'10", long 111°22'19", in NE1/4 SE1/4 sec.29, T.15 N., R.3 E., Cascade County, Hydrologic Unit 10030103, at bridge on county road, at old town site of Millegan, 16.2 mi (26.1 km) south of Secondary Highway 330, 18.0 mi (29.0 km) south of Eden.	13.2	1974-79	4-16-79	a2.66	b 32
06077800	Goodman Coulee near Eden	Lat 47°19'29", long 111°25'35", in center of sec.12, T.18 N., R.2 E., Cascade County, Hydrologic Unit 10030103, at culvert on county road, 8 mi (13 km) northwest of Eden.	22.1	1959-79	3-07-79	a5.95	b 85

See footnotes at end of table, p. 789.

Annual maximum discharge at crest-stage partial-record stations--Continued

Station No.	Station name	Location	Drainage area (mi^2)	Period of record	Date	Annual maximum	
						Gage height (ft)	Discharge (ft^3/s)
		BELT CREEK BASIN					
06090550	Little Otter Creek near Raynesford	Lat 47°15'05", long 110°43'50", in SW 1/4 NW 1/4 sec.8, T.17 N., R.8 E., Judith Basin County, Hydrologic Unit 10030105, at culvert on Secondary Highway 427, 1.0 mi (1.6 km) south of Raynesford.	c39.5	1974-79	6-19-79	3.20	25
		SHONKIN CREEK BASIN					
06090810	Ninemile Coulee near Fort Benton	Lat 47°42'01", long 110°42'12", in SE1/4 SE1/4 sec.34, T.23 N., R.8 E., Chouteau County, Hydrologic Unit 10030102, at culverts on county road, 8.4 mi (13.5 km) south of Missouri River bridge at Fort Benton.	c16.9	1972-79	3-07-79	9.58	2,110
		MARIAS RIVER BASIN					
06097100	Blacktail Creek near Heart Butte	Lat 48°14'56", long 112°47'19", in NW1/4 NW1/4 sec.28, T.29 N., R.9 W., Pondera County, Hydrologic Unit 10030201, at bridge on county road, 3.3 mi (5.3 km) southeast of Heart Butte, 16.7 mi (26.9 km) northwest of Dupuyer.	16.4	1975-79	4-10-79	2.40	178
06098700	Powell Coulee near Browning	Lat 48°45'01", long 112°45'21', in SE1/4 NE1/4 sec.34, T.35 N., R.9 W., Glacier County, Hydrologic Unit 10030202, at culvert on Secondary Highway 444, 10.5 mi (16.9 km) north of U.S. Highway 2, 18 mi (29 km) northeast of Browning.	12.7	1974-79	4-10-79	3.37	64
06100300	Lone Man Coulee near Valier	Lat 48°14'10", long 112°13'49", in SE1/4 sec.27, T.29 N., R.5 W., Pondera County, Hydrologic Unit 10030203, at culvert on county road, 5 mi (8 km) south of Valier.	14.1	1960-79	3-06-79	a7.54	b240
06101520	Favot Coulee tributary near Ledger	Lat 48°15'47", long 111°42'09", in SE1/4 SW1/4 sec.14, T.29 N.,R.1 W., Pondera County, Hydrologic Unit 10030203, at culvert on Highway 366 0.3 mi (0.5 km) east of Higgins School, 5.5 mi (8.9 km) east of Ledger.	.86	1974-79	3-10-79	1.96	21
06101700	Fey Coulee tributary near Chester	Lat 48°27'31", long 111°04'47", near center of east line of sec.9, T.31 N., R.5 E., Liberty County, Hydrologic Unit 10030203, at culvert on county road, 3.5 mi (5.6 km) south of Tiber Siding on Great Northern Railway and U.S. Highway 2, 6.5 mi (10.5 km) southwest of Chester.	2.47	1963-79	3-13-79	2.27	35
06105800	Bruce Coulee tributary near Choteau	Lat 47°44'07", long 112°15'05", near center of sec.21, T.23 N., R.5 W., Teton County, Hydrologic Unit 10030205, at bridge on county road 1.2 mi (1.9 km) west of State Highway 287, 6 mi (10 km) southwest of Choteau.	1.70	1963-79	6-18-79	1.34	65

See footnotes at end of table, p. 789.

Annual maximum discharge at crest-stage partial-record stations--Continued

Station No.	Station name	Location	Drainage area (mi^2)	Period of record	Date	Annual maximum	
						Gage height (ft)	Discharge (ft^3/s)
		LITTLE SANDY CREEK BASIN					
06109530	Little Sandy Creek tributary near Virgelle	Lat 48°05'15", long 109°56'34", in NW 1/4 NW 1/4 sec.21, T.27 N., R.14 E., Choteau County, Hydrologic Unit 10040101, at culvert on county road, 10 mi (16 km) southeast of Big Sandy.	0.80	1972 1974-79	7-26-79	1.45	3
		ALKALI COULEE BASIN					
06109560	Alkali Coulee tributary near Virgelle	Lat 48°03'19", long 110°05'21', in SW1/4 NW1/4, sec.21, T.27 N., R.13 E., Choteau County, Hydrologic Unit 10040101, at bridge on county road, 2.1 mi (3.4 km) south of Highway 236, 9.1 mi (14.6 km) southeast of Big Sandy.	0.96	1974-79	3-13-79	a2.85	d3
		JUDITH RIVER BASIN					
06111700	Mill Creek near Lewistown	Lat 46°59'44", long 109°26'49", in NE1/4 sec.9, T.14 N., R.18 E., Fergus County, Hydrologic Unit 10040103, at culverts on county road, 5 mi (8 km) south of Lewistown.	c3.14	1960-79	3-15-79	a2.04	b20
06112800	Bull Creek tributary near Hilger	Lat 47°15'10", long 109°21'51", in NW1/4 NE1/4 sec.12, T.17 N., R.18 E., Fergus County, Hydrologic Unit 10040103, at culvert on county road, 0.4 mi (0.6 km) west of Hilger.	.99	1974-79	3-15-79	a4.31	b30
06114550	Wolf Creek tributary near Coffee Creek	Lat 47°17'56", long 110°07'57", in NE1/4 NE1/4 sec.25, T.18 N., R.12 E., Judith Basin County, Hydrologic Unit 10040103, at culverts on county road, 1.8 mi (2.9 km) east of Highway 230, 4 mi (6 km) southwest of Coffee Creek.	1.73	1974-79	3-06-79	5.78	b140
		DOG CREEK BASIN					
06114900	Taffy Creek tributary near Winifred	Lat 47°39'06", long 109°15'33", in SW1/4 NW1/4 sec.26, T.22 N., R.19 E., Fergus County, Hydrologic Unit 10040101, at culvert on county road, 8.5 mi (13.7 km) northeast of Winifred.	2.47	1974-79	3-15-79	3.21	b40
		DUVAL CREEK BASIN					
06115300	Duval Creek near Landusky	Lat 47°45'17", long 108°42'23", in center of sec.13, T.23 N., R.23 E., Phillips County, Hydrologic Unit 10040104, at culvert on U.S. Highway 191, 10.0 road mi (16.1 km) north of Fred Robinson Bridge, 11 mi (18 km) southwest of Landusky.	3.31	1963-79	4-23-79	2.18	20
		MUSSELSHELL RIVER BASIN					
06117800	Big Coulee near Martinsdale (formerly named Dirty Creek near Martinsdale)	Lat 46°33'00", long 110°18'52", in SW1/4 SW1/4 sec.11, T.9 N., R.11 E., Meagher County, Hydrologic Unit 10040201, at culvert on county road, 4.3 mi (6.9 km) north of U.S. Highway 12, 6.5 mi (10.5 km) north of Martinsdale.	c2.86	1972 1974-79	6-19-79	5.75	240

See footnotes at end of table, p. 789.

Annual maximum discharge at crest-stage partial-record stations--Continued

						Annual maximum	
Station No.	Station name	Location	Drainage area (mi^2)	Period of record	Date	Gage height (ft)	Discharge (ft^3/s)
		MUSSELSHELL RIVER BASIN--Continued					
06120800	Antelope Creek tributary No. 2 near Harlowton	Lat 46°27'47", long 109°49'29", in SE1/4 sec.10, T.8 N., R.15 E., Wheatland County, Hydrologic Unit 10040201, at E.S. Bacon ranch, 1.5 mi (2.4 km) north of Harlowton.	21.2	1956-79	6-19-79	2.21	210
06123200	Spring Creek tributary near Harlowton	Lat 46°11'35", long 109°54'10", in NW1/4 NW1/4 sec.18, T.5 N., R.15 E., Sweet Grass County, Hydrologic Unit 10040201, at culverts on U.S. Highway 191, 17 mi (27 km) south of Harlowton.	2.10	1971 1973-79	6-17-79	1.53	8
06124600	East Fork Roberts Creek tributary near Judith Gap	Lat 46°40'51", long 109°40'24", in SE1/4 SW1/4 sec.26, T.11 N., R.16 E., Wheatland County, Hydrologic Unit 10040201, at culvert on Secondary Highway 248, 3.5 mi (5.6 km) east of Judith Gap.	.74	1974-79	6-19-79	3.14	48
06125520	Swimming Woman Creek tributary near Living Springs	Lat 46°36'24", long 109°21'33", in SW1/4 SW1/4 sec.20, T.10 N., R.19 E., Golden Valley County, Hydrologic Unit 10040201, at culvert on county road, 8 mi (13 km) northeast of Living Springs, 19.5 mi (31.4 km) east of Judith Gap.	1.73	1974-79	6-18-79	2.22	6
06125680	Big Coulee Creek tributary near Cushman	Lat 46°14'50", long 109°01'58", in SE1/4 SE1/4 sec.24, T.6 N., R.21 E., Golden Valley County, Hydrologic Unit 10040201, at culvert on county road, 3.0 mi (4.8 km) south of Cushman, 5.5 mi (8.8 km) southwest of Lavina.	1.23	1974-79	3-11-79	--	[b]10
06127505	Fish Creek near Musselshell	Lat 46°27'25", long 108°06'36", in NW1/4 SW1/4 sec.9, T.8 N., R.29 E., Musselshell County, Hydrologic Unit 10040202, at culvert on county road, 4.5 mi (7.2 km) southwest of Musselshell.	17.8	1974-79	--	--	[e]
06127520	Home Creek near Sumatra	Lat 46°38'14", long 107°37'12", in SE1/4 NW1/4 sec.7, T.10 N., R.33 E., Rosebud County, Hydrologic Unit 10040202, 100 ft (31 m) upstream from U.S. Highway 12, 3.7 mi (6.0 km) northwest of Sumatra.	1.98	1973-79	3-16-79	[a]4.34	31
06127570	Butts Coulee near Melstone	Lat 46°38'49", long 107°49'15", in center of E1/2 sec.9, T.10 N., R.31 E., Musselshell County, Hydrologic Unit 10040202, at culvert on county road, 2.8 mi (4.5 km) north of U.S. Highway 12, 4 mi (6 km) northeast of Melstone.	6.71	1963-79	3-12-79	5.16	150
06127585	Little Wall Creek tributary near Flatwillow	Lat 46°45'36", long 108°36'24", in SE1/4 NW1/4 sec.32, T.12 N., R.25 E., Petroleum County, Hydrologic Unit 10040202, at culvert on U.S. Highway 87, 11 mi (18 km) southwest of Flatwillow, 20.5 mi (33.0 km) southeast of Grass Range.	3.95	1974-79	4-06-79	3.70	30

See footnotes at end of table, p. 789.

DISCHARGE AT PARTIAL RECORD STATIONS AND MISCELLANEOUS SITES

Annual maximum discharge at crest-stage partial-record stations--Continued

Station No.	Station name	Location	Drainage area (mi²)	Period of record	Date	Annual maximum	
						Gage height (ft)	Discharge (ft³/s)
		MUSSELSHELL RIVER BASIN--Continued					
06128500	South Fork Bear Creek tributary near Roy	Lat 47°13'44", long 108°47'54", in SW1/4 sec.16, T.17 N., R.23 E., Fergus County, Hydrologic Unit 10040204, at culvert on State Highway 19, 1.7 mi (2.7 km) north of South Fork Bear Creek, 8.7 road mi (14.0 km) south of U.S. Highway 191, 10.5 mi (16.9 km) southeast of Roy.	5.40	1962-79	3-12-79	a3.62	b35
06129800	Gorman Coulee tributary near Cat Creek	Lat 47°00'45", long 108°05'33", in SE1/4 SW1/4 sec.31, T.15 N., R.29 E., Petroleum County, Hydrologic Unit 10040204, at culvert on State Highway 20, 6 mi (10 km) southwest of Cat Creek.	.81	1955-79	3-14-79	a2.04	b25
06130610	Bair Coulee near Mosby	Lat 47°03'15", long 107°36'43", in NE1/4 NE1/4 sec.23, T.15 N., R.32 E., Garfield County, Hydrologic Unit 10040205, at bridge on U.S. Highway 200, 6.8 mi (10.9 km) southwest of Sand Springs, 9.0 mi (14.5 km) northeast of Mosby.	1.79	1974-79	3-24-79	1.55	25
06130620	Blood Creek tributary near Valentine	Lat 47°20'12", long 108°27'48", in SW1/4 NW1/4 sec.7, T.18 N., R.26 E., Fergus County, Hydrologic Unit 10040205, at culvert on county road 3.0 mi (4.8 km) northeast of Valentine, 23 mi (37 km) east of Roy.	1.97	1974-79	3-12-79	a4.36	b30
		BIG DRY CREEK					
06130850	Second Creek tributary No. 2 near Jordan	Lat 47°12'23", long 106°48'56", in NE1/4 sec.25, T.17 N., R.38 E., Garfield County, Hydrologic Unit 10040105, at culvert on State Highway 22, 9.5 mi (15.3 km) southeast of Jordan.	2.08	1958-79	5-06-79	.63	12
06130915	Russian Coulee near Jordan	Lat 47°19'58", long 106°42'39", in NE1/4 SW1/4 sec.11, T.18 N., R.39 E., Garfield County, Hydrologic Unit 10040105, at bridge on U.S. Highway 200, 9.4 mi (15.1 km) east of Jordan.	3.45	1974-79	4-08-79	2.71	25
06130925	Thompson Creek tributary near Cohagen	Lat 46°57'05", long 106°27'38", in NW1/4 SW1/4 sec.19, T.14 N., R.42 E., Garfield County, Hydrologic Unit 10040106, 100 ft (30 m) downstream from bridge, 1.3 mi (2.1 km) northeast of Thompson Creek, 10.5 mi (16.9 km) southeast of Cohagen, 14.1 mi (22.7 km) northeast of Rock Springs.	1.23	1974-79	4-17-79	1.10	5
06130940	Spring Creek tributary near Van Norman	Lat 47°14'58", long 106°18'21", in NW1/4 NE1/4 sec.12, T.17 N., R.42 E., Garfield County, Hydrologic Unit 10040106, at culvert on county road, 7.2 mi (11.6 km) south of State Highway 200, 8 mi (13 km) southeast of Van Norman, 20.6 mi (33.1 km) northeast of Cohagen.	1.39	1974-79	c7-03-78 4-08-79	c2.70 a5.48	c17 b50

See footnotes at end of table, p. 789.

DISCHARGE AT PARTIAL RECORD STATIONS AND MISCELLANEOUS SITES

Annual maximum discharge at crest-stage partial-record stations--Continued

Station No.	Station name	Location	Drainage area (mi²)	Period of record	Date	Annual maximum	
						Gage height (ft)	Discharge (ft³/s)
		TIMBER CREEK BASIN					
06131100	Timber Creek tributary near Van Norman	Lat 47°23'32", long 106°10'15", in SE1/4 NE1/4 sec.23, T.19 N., R.43 E., McCone County, Hydrologic Unit 10040104, at culvert on State Highway 24, 4.7 mi (7.6 km) north of State Highway 200, 12 mi (19 km) east of Van Norman.	0.74	1974-79	7-01-79	1.26	12
		MCGUIRE CREEK BASIN					
06131300	McGuire Creek tributary near Van Norman	Lat 47°36'22", long 106°09'12", in NE1/4 SE1/4 sec.2, T.21 N., R.43 E., McCone County, Hydrologic Unit 10040104, at culvert on State Highway 24, 0.7 mi (1.1 km) south of McGuire Creek, 19 mi (31 km) north of State Highway 200, 20.5 mi (33.0 km) northeast of Van Norman.	.79	1974-79	7-04-78 4-17-79	c6.13 2.15	c218 30
		MILK RIVER BASIN					
06132400	Dry Fork Milk River near Babb	Lat 48°49'50", long 113°12'02", in SE1/4 sec.32, T.36 N., R.12 W., Glacier County, Hydrologic Unit 10050001, at bridge on State Highway 464, 11 mi (18 km) east of Babb.	17.9	1962-79	3-28-78 3-07-79	a4.56 a5.34	b150 b150
06134800	Van Cleeve Coulee tributary near Sunburst	Lat 48°53'05", long 111°49'20", on north line of NE1/4 sec.14, T.36 N., R.2 W., Toole County, Hydrologic Unit 10030203, at culvert on county road, 3.7 road mi (6.0 km) east of Interchange on Interstate 15 at Sunburst.	10.8	1963-79	5-06-79	3.47	82
06136400	Spring Coulee tributary near Simpson	Lat 48°56'36", long 110°12'51", in SW1/4 SW1/4 sec.24, T.37 N., R.12 E., Hill County, Hydrologic Unit 10050002, at culvert on Highway 232, 1.3 mi (2.1 km) northwest of Simpson, 38 mi (61 km) northwest of Havre.	2.49	1972 1974-79	3-12-79	3.14	25
06137600	Sage Creek tributary No. 2 near Joplin	Lat 48°54'38", long 110°46'20", in NE1/4 NE1/4 sec.2, T.36 N., R.7 E., Liberty County, Hydrologic Unit 10050006, at culvert on Highway 224, 0.7 mi (1.1 km) north of Sage Creek, 25.2 mi (40.5 km) north of Joplin.	2.21	1974-79	3-07-79	1.54	4.7
06138700	South Fork Spring Coulee near Havre	Lat 48°24'33", long 109°49'44", in NE1/4 sec.31, T.31 N., R.15 E., Hill County, Hydrologic Unit 10050005, at culvert on county road, 12 mi (19 km) southwest of Havre.	6.47	1960-79	3-06-79	3.67	70
06153400	Fifteenmile Creek tributary near Zurich	Lat 48°38'36", long 109°02'50", in SE1/4 SE1/4 sec.1, T.33 N., R.21 E., Blaine County, Hydrologic Unit 10050004, at culvert on county road, 4.3 mi (6.9 km) north of Zurich.	1.40	1974-79	3-12-79	3.47	34

See footnotes at end of table, p. 789.

Annual maximum discharge at crest-stage partial-record stations--Continued

Station No.	Station name	Location	Drainage area (mi^2)	Period of record	Date	Annual maximum	
						Gage height (ft)	Discharge (ft^3/s)
		MILK RIVER BASIN--Continued					
06154350	Peoples Creek tributary near Lloyd	Lat 48°11'33", long 109°18'25", in SW1/4 SE1/4 sec.8, T.28 N., R.19 E., Blaine County, Hydrologic Unit 10050009, at culvert on county road, 1.6 mi (2.6 km) south of Peoples Creek, 8 mi (13 km) south of Lloyd.	2.51	1974-79	--	--	e
06155300	Disjardin Coulee near Malta	Lat 48°16'33", long 107°57'49", in SE1/4 NW1/4 sec.16, T.29 N., R.29 E., Phillips County, Hydrologic Unit 10050004, at bridge on U.S. Highway 191, 8 mi (13 km) southwest of Malta.	c4.84	1956-79	3-13-79	--	d10
06155600	Murray Coulee tributary near Hogeland	Lat 48°47'16", long 108°44'50", in SW1/4 SE1/4 sec.17, T.35 N., R.23 E., Blaine County, Hydrologic Unit 10050010, at culverts on county road, 6.5 mi (10.5 km) southwest of Hogeland, 13.6 mi (22.9 km) north of State Highway 241, 18.4 mi (29.6 km) northeast of Harlem.	1.77	1974-79	3-16-79	a2.44	b35
06156100	Lush Coulee near Whitewater	Lat 48°41'10", long 107°41'25", in SE1/4 SE1/4 sec.20, T.34 N., R.31 E., Phillips County, Hydrologic Unit 10050011, at culverts on county road, 3 mi (5 km) north of State Highway 242, 6 mi (10 km) southwest of Whitewater.	9.58	1972 1974-79	7-05-79	1.06	19
06164600	Beaver Creek tributary near Zortman	Lat 47°55'38", long 108°21'07", in NE1/4 NE1/4 sec.15, T.25 N., R.26 E., Phillips County, Hydrologic Unit 10050014, at bridge on State Highway 191, 8 mi (13 km) east of Zortman.	3.89	1974-79	5-06-79	2.00	60
06165200	Beaver Creek tributary No. 2 near Malta	Lat 48°14'34", long 107°32'58", in SW1/4 NE1/4 sec.27, T.29 N., R.32 E., Phillips County, Hydrologic Unit 10050014, at culvert on county road, 17 mi (27 km) southeast of Malta, 18 mi (29 km) southwest of Saco.	1.95	1974-79	5-06-79	1.96	13
06172300	Unger Coulee near Vandalia	Lat 48°22'11", long 106°47'37", in SW1/4 sec.9, T.30 N., R.38 E., Valley County, Hydrologic Unit 10050012, at bridge on U.S. Highway 2, 4.5 mi (7.2 km) northeast of Vandalia.	11.1	1958-79	7-05-79	5.92	3,450
06173300	Willow Creek tributary near Fort Peck	Lat 47°53'36", long 106°53'22", in SE1/4 NE1/4 sec.25, T.25 N., R.37 E., Valley County, Hydrologic Unit 10050012, at culvert on county road, 19.8 mi (31.9 km) southwest of State Highway 24, 21.5 mi (34.6 km) southwest of Fort Peck.	.86	1972 1974-79	4-16-79	.54	20
06174300	Milk River tributary No. 3 near Glasgow	Lat 48°12'17", long 106°33'05", in SW1/4 SW1/4 sec.3, T.28 N., R.40 E., Valley County, Hydrologic Unit 10050012, at culvert on county road, 1.4 mi (2.9 km) east of State Highway 247, 4 mi (6 km) northwest of Glasgow.	1.82	1974-79	4-09-79	5.74	118
06174600	Snow Coulee at Opheim	Lat 48°50'27", long 106°24'47", in SE1/4 SE1/4 sec.25, T.36 N., R.40 E., Valley County, Hydrologic Unit 10050016, at culvert on FAS Route 247, 1 mi (2 km) south of Opheim.	3.11	1972 1974-79	3-29-78 4-18-79	a5.11 1.35	b170 4

See footnotes at end of table, p. 789.

Annual maximum discharge at crest-stage partial-record stations--Continued

Station No.	Station name	Location	Drainage area (mi^2)	Period of record	Date	Annual maximum Gage height (ft)	Annual maximum Discharge (ft^3/s)
		WOLF CREEK BASIN					
06175700	East Fork Wolf Creek near Lustre	Lat 48°24'58", long 105°47'51", in SE1/4, sec.30, T.31 N., R.46 E., Valley County, Hydrologic Unit 10060001, at culverts on county road, 4 mi (6 km) east of Lustre.	9.61	1956-79	4-15-79	5.12	b210
06175900	Wolf Creek tributary No. 2 near Wolf Point	Lat 48°12'05", long 105°44'45", in sec.11, T.28 N., R.46 E., Roosevelt County, Hydrologic Unit 10060001, at bridge on county road, 9.5 mi (15.3 km) northwest of Wolf Point.	6.10	1955-79	1973 1976 1977 c3-27-78 4-18-79	-- -- -- c4.55 4.45	c100 c50 c20 c5 5
		TRIBUTARY BETWEEN WOLF CREEK AND TULE CREEK					
06176950	Missouri River tributary No. 6 near Wolf Point	Lat 48°03'23", long 105°33'22", in NW1/4 NW1/4 sec.32, T.27 N., R.48 E., McCone County, Hydrologic Unit 10060001, at upstream end of culvert on county road, 1.2 mi (1.9 km) west of State Highway 13, 5 mi (8 km) southwest of Wolf Point.	c.53	1973-79	4-17-79	3.64	3
		TULE CREEK BASIN					
06177020	Tule Creek tributary near Wolf Point	Lat 48°14'40", long 105°29'31", in SE1/4 SE1/4 sec. 21, T.29 N., R.48 E., Roosevelt County, Hydrologic Unit 10060001, at upstream end of culvert, on county road 0.2 mi (0.3 km) east of State Highway 13, 8.6 mi (13.8 km) north of U.S. Highway 2, 12 mi (20 km) northeast of Wolf Point.	.74	1974-79	4-10-79	1.99	28
		REDWATER RIVER BASIN					
06177050	East Fork Duck Creek near Brockway	Lat 47°11'14", long 105°47'09", in sec.31, T.17 N., R.47 E., McCone County, Hydrologic Unit 10060002, at bridge on county road, 8 mi (13 km) south of Brockway.	12.4	1955-79	4-09-79	3.02	400
06177700	Cow Creek tributary near Vida	Lat 47°42'34", long 105°29'24" in SE1/4 sec.36, T.23 N., R.48 E., McCone County, Hydrologic Unit 10060002, at bridge on State Highway 13, 8.8 mi (14.2 km) south of Vida.	1.71	1963-79	4-18-79	2.43	180
06177720	West Fork Sullivan Creek near Richey	Lat 47°31'47", long 105°13'43", in NW1/4 NW1/4 sec.4, T.20 N., R.51 E., Dawson County, Hydrologic Unit 10060002, at culvert on county road, 2.5 mi (4.0 km) south of Highway 200, 11 mi (18 km) southwest of Richey.	13.8	1974-79	4-18-79	3.50	48
06177800	Wolf Creek tributary near Vida	Lat 47°54'49", long 105°29'53", in SE1/4 sec.15, T.25 N., R.48 E., McCone County, Hydrologic Unit 10060002, at bridge on State Highway 13, 5.5 mi (8.8 km) north of Vida.	.91	1962-79	1978 4-08-79	c1.99 a3.09	c50 b80
06177820	North Fork Creek tributary near Richey	Lat 47°52'28", long 104°56'10", in SE1/4 NE1/4 sec.36, T.25 N., R.52 E., Richland County, Hydrologic Unit 10060002, at culvert on county road, 17 mi (27 km) northeast of Richey.	.74	1974-79	4-17-79	3.73	52

See footnotes at end of table, p. 789.

Annual maximum discharge at crest-stage partial-record stations--Continued

Station No.	Station name	Location	Drainage area (mi^2)	Period of record	Date	Annual maximum Gage height (ft)	Annual maximum Dis-charge (ft^3/s)
		POPLAR RIVER BASIN					
06179100	Butte Creek tributary near Four Buttes	Lat 48°49'33", long 105°35'08", in SE1/4 SE1/4 sec.5, T.35 N., R.47 E., Daniels County, Hydrologic Unit 10060003, at upstream end of culvert on FAS Route 248, 1 mi (2 km) east of Four Buttes.	c1.60	1972 1974-79	4-16-79	1.81	22
		BIG MUDDY CREEK BASIN					
06182700	Middle Fork Big Muddy Creek near Flaxville	Lat 48°48'08", long 105°06'48", in SW1/4 NE1/4 sec.12, T.35 N., R.50 E., Daniels County, Hydrologic Unit 10060006, at bridge on State Highway 5, 2.8 mi (4.5 km) east of Flaxville.	c3.12	1972 1974-79	4-15-79	3.12	95
06183300	Spring Creek near Plentywood	Lat 48°48'45", long 104°28'16", in SE1/4 sec.1, T.35 N., R.55 E., Sheridan County, Hydrologic Unit 10060006, at culvert on county road, 5 mi (8 km) northeast of Plentywood.	7.05	1955-79	4-15-79	5.84	524
06184200	Lost Creek tributary near Homestead	Lat 48°24'09", long 104°29'49", in NW1/4 NW1/4 sec.31, T.31 N., R.56 E., Sheridan County, Hydrologic Unit 10060006, at bridge on State Highway 16, 2.3 mi (3.7 km) southeast of Homestead.	1.90	1972 1974-79	4-09-79	6.80	145
		TRIBUTARY BETWEEN BIG MUDDY CREEK AND YELLOWSTONE RIVER					
06185400	Missouri River tributary No. 5 at Culbertson	Lat 48°09'31", long 104°30'55", in SE1/4 sec.20, T.28 N., R.56 E., Roosevelt County, Hydrologic Unit 10060005, at culvert on State Highway 16, at Culbertson Rodeo Grounds.	3.67	1963-79	7-04-79	5.89	425
		YELLOWSTONE RIVER BASIN					
06201700	Hump Creek near Reed Point	Lat 45°42'33", long 109°35'35", in NE1/4 sec.35, T.1 S., R.17 E., Sweet Grass County, Hydrologic Unit 10070004, at bridge on Interstate Highway 90 and U.S. Highway 10, 2 mi (3 km) west of Reed Point.	7.61	1960-79	4-11-79	a2.94	b20
06205100	Allen Creek near Park City	Lat 45°35'43", long 109°03'22", in NE1/4 sec.7, T.3 S., R.22 E., Stillwater County, Hydrologic Unit 10070004, about 200 ft (61 m) upstream from Cove ditch flume, 7 mi (11 km) west of Park City.	7.17	1961-79	3-07-79	a2.64	b90
06207600	Jack Creek tributary near Belfry	Lat 45°09'44", long 108°49'24", in SE1/4 SE1/4 sec.6, T.8 S., R.24 E., Carbon County, Hydrologic Unit 10070006, on railroad bridge 100 ft (30 m) upstream from U.S. Highway 310, 9 mi (14 km) east of Belfry.	.85	1975-79	4-07-79	a5.21	f
06214150	Mills Creek at Rapelje	Lat 45°58'03", long 109°15'17", in SE1/4 NE1/4 sec.32, T.3 N., R.20 E., Stillwater County, Hydrologic Unit 10070004, at culvert on Secondary Highway 306, 0.4 mi (0.6 km) south of Rapelje.	3.32	1974-79	3-12-79	a6.08	b40

See footnotes at end of table, p. 789.

Annual maximum discharge at crest-stage partial-record stations--Continued

Station No.	Station name	Location	Drainage area (mi^2)	Period of record	Date	Annual maximum Gage height (ft)	Annual maximum Discharge (ft^3/s)
		YELLOWSTONE RIVER BASIN--Continued					
06216200	West Wets Creek near Billings	Lat 45°37'38", long 108°24'14", in SW1/4 sec.28,T.2 S.,R.27 E., Yellowstone County, Hydrologic Unit 10070008, at bridge on county road, 19 mi (31 km) southeast of Billings.	8.80	1955-79	3-12-79	g	<30
06217300	Twelvemile Creek near Shepherd	Lat 45°55'16", long 108°27'44", in NW1/4 SW1/4 sec.14, T.2 N., R.26 E., Yellowstone County, Hydrologic Unit 10070007, at culverts on U.S. Highway 87, 5.6 mi (9.0 km) north of junction with old Highway 10, 6.0 mi (9.7 km) west of Shepherd.	9.05	1973-79	3-07-79	a4.24	f
06217700	Crooked Creek tributary near Shepherd	Lat 46°04'23", long 108°30'09", in SW1/4 sec.21, T.4 N., R.26 E., Yellowstone County, Hydrologic Unit 10070007, at bridge on county road, 1.7 mi (2.7 km) west of U.S. Highway 87 between Billings and Roundup, 12 mi (19 km) northwest of Shepherd, 20 mi (32 km) north of Billings.	7.21	1962-79	c9-18-78 3-12-79	c- .54 - .34	c8 11
06290200	Little Bighorn River tributary near Wyola	Lat 45°08'18", long 107°23'08", in SE1/4 NW1/4 sec.14, T.8 S., R.35 E., Big Horn County, Hydrologic Unit 10080016 at private bridge, 0.3 mi (0.5 km) east of U.S. Highway 87, 0.8 mi (1.3 km) northeast of Wyola.	4.43	1973-79	1975 3-12-79	-- g	b28 b3
06293300	Long Otter Creek near Lodgegrass	Lat 45°26'15", long 107°23'42", near center of line between NE1/4 and NW1/4 of SE1/4 sec.28, T.4 S., R.35 E., Big Horn County, Hydrologic Unit 10080016, at culvert on U.S. Highway 87, 10 mi (16 km) north of Lodgegrass.	11.7	1973-79	4-12-79	g	1
06294400	Andresen Coulee near Custer	Lat 46°03'53", long 107°32'30", in center of W1/2 sec.30, T.4 N., R.34 E., Yellowstone County, Hydrologic Unit 10080015, at culvert on State Highway 47, 4.5 mi (7.2 km) south of Custer.	2.33	1963-79	3-13-79	a1.67	b14
06294600	Tullock Creek tributary near Hardin	Lat 45°47'52", long 107°15'40", in NW1/4 NW1/4 sec.33, T.1 N., R.36 E., Big Horn County, Hydrologic Unit 10080015, at culvert on State Highway 384, 18 mi (30 km) northeast of Hardin.	8.63	1973-79	3-12-79	a2.26	b20
06294930	Sarpy Creek tributary near Colstrip	Lat 45°54'54", long 107°07'57", in SW1/4 SW1/4 sec.16, T.2 N., R.37 E., Treasure County, Hydrologic Unit 10100001, at culvert on county road, 25 mi (40 km) west of Colstrip.	4.44	1972-79	4-14-79	1.29	7
06294960	Anderson Creek at Vananda	Lat 46°23'35", long 107°00'27", in SE1/4 NE1/4 sec.6, T.7 N., R.38 E., Rosebud County, Hydrologic Unit 10100002, at bridge on U.S. Highway 12, at Vananda.	5.71	1973-79	3-24-79	a2.35	f
06294985	East Fork Armells Creek tributary near Colstrip	Lat 46°04'01", long 106°42'39", in SE1/4 SE1/4 sec.26, T.4 N., R.40 E., Rosebud County, Hydrologic Unit 10100001, at bridge on State Highway 315, 13 mi (21 km) north of Colstrip.	1.87	1973-79	3-12-79	a4.75	b10

See footnotes at end of table, p. 789.

Annual maximum discharge at crest-stage partial-record stations--Continued

Station No.	Station name	Location	Drainage area (mi^2)	Period of record	Date	Annual maximum	
						Gage height (ft)	Discharge (ft^3/s)
		YELLOWSTONE RIVER BASIN--Continued					
06295020	Short Creek near Forsyth	Lat 46°17'44", long 106°40'05", in NW1/4 sec.12, T.6 N., R.40 E., Rosebud County, Hydrologic Unit 10100001, at bridge on county road, 2.4 mi (3.9 km) northeast of U.S. Highway 12, 2 mi (3 km) north of Forsyth.	3.23	1962-79	7-25-79	4.78	410
06296115	Reservation Creek near Miles City	Lat 46°22'38", long 105°58'21", in SE1/4 NE1/4 sec.9, T.7 N., R.46 E., Custer County, Hydrologic Unit 10100001, at culvert on county road No. 446, 6.5 mi (10.5 km) southwest of Miles City.	6.29	1973-79	7-25-79	2.84	200
06306900	Spring Creek near Decker	Lat 45°05'09", long 106°50'12", in SW1/4 NW1/4 SE1/4 sec. 33, T.8 S., R.40 E., Big Horn County, Hydrologic Unit 10090101, at culverts on county road, 5 mi (8 km) north of Decker at site of water-quality station.	34.7	1958-79	1978 4-19-79	3.00 .72	c270 42
06306950	Leaf Rock Creek near Kirby	Lat 45°11'16", long 106°54'50", in center of sec.35, T.7 S., R.39 E., Big Horn County, Hydrologic Unit 10090101, at culvert on county road, 10 mi (16 km) south of Kirby.	c4.53	1958-79	--	--	e
06307520	Canyon Creek near Birney	Lat 45°14'28", long 106°40'32", in SW1/4 sec.11, T.7 S., R.41 E., Rosebud County, Hydrologic Unit 10090101, at bridge on county road, 11 mi (18 km) southwest of Birney.	50.2	1972-79	8-22-79	g	d1.5
06307620	Tie Creek near Birney	Lat 45°28'21", long 106°31'33", in SW1/4 SE1/4 sec.22, T.4 S., R.42 E., Rosebud County, Hydrologic Unit 10090102, at bridge on State Highway 315, 11 mi (18 km) north of Birney.	18.7	1973-79	7-24-79	2.41	60
06307700	Cow Creek near Fort Howes ranger station, near Otter	Lat 45°17'20", long 106°09'14", in SW1/4 NW1/4 sec.30, T.6 S., R.46 E., Powder River County, Hydrologic Unit 10090102, at bridge on county road, 0.5 mi (0.8 km) north of Fort Howes, 6.6 mi (10.6 km) north of Otter Creek Post Office.	8.37	1972-79	7-25-79	1.45	5
06307720	Brian Creek near Ashland	Lat 45°24'37", long 106°09'07", in SW1/4 SW1/4 sec.11, T.5 S., R.45 E., Powder River County, Hydrologic Unit 10090102, at culvert on county road, 9.3 mi (15.0 km) north of Fort Howes, 13.5 mi (21.7 km) south of Ashland.	8.03	1973-79	--	--	e
06307780	Stebbins Creek at mouth, near Ashland	Lat 45°38'27", long 106°17'34", in NW1/4 sec.27, T.2 S., R.44 E., Rosebud County, Hydrologic Unit 10090102, at bridge on county road, 3.5 mi (5.6 km) northwest of Ashland.	19.9	1963-79	3-16-79	a3.03	b75
06307930	Jack Creek near Volborg	Lat 46°04'55", long 105°51'08", in NE1/4 NW1/4 sec.26, T.4 N., R.47 E., Custer County, Hydrologic Unit 10090102, at bridge on State Highway 332, 19 mi (31 km) northwest of Volborg.	5.47	1973-79	3-16-79	a2.37	b30

See footnotes at end of table, p. 789.

Annual maximum discharge at crest-stage partial-record stations--Continued

Station No.	Station name	Location	Drainage area (mi^2)	Period of record	Date	Annual maximum Gage height (ft)	Annual maximum Discharge (ft^3/s)
		YELLOWSTONE RIVER BASIN--Continued					
06308100	Sixmile Creek tributary near Epsie	Lat 45°31'27", long 105°45'10", in SW1/4 SW1/4 sec.36, T.3 S., R.48 E., Powder River County, Hydrologic Unit 10090102, at culvert on U.S. Highway 212, 5.2 mi (8.4 km) northwest of Epsie.	0.24	1973-79	1972 7-25-79	-- 5.07	c295 175
06308200	Basin Creek tributary near Volborg	Lat 45°53'11", long 105°41'12", in NW1/4 sec.31, T.2 N., R.49 E., Custer County, Hydrologic Unit 10090102, at culvert on county road, 3.5 mi (5.6 km) north of Volborg.	.14	1955-79	--	--	e
06308330	Deer Creek tributary near Volborg	Lat 46°02'04", long 105°31'15", in extreme southwest corner of sec.4, T.3 N., R.50 E., Custer County, Hydrologic Unit 10090102, at culvert on county road, 3 mi (5 km) east of U.S. Highway 312, 16 mi (26 km) northeast of Volborg.	1.65	1973-79	4-11-79	1.42	3
06308340	LaGrange Creek near Volborg	Lat 46°06'17", long 105°33'20", in NE1/4 NW1/4 sec.18, T.4 N., R.50 E., Custer County, Hydrologic Unit 10090102, at culvert near mile post 27 on U.S. Highway 312, 19 mi (31 km) north of Volborg.	3.66	1973-79	3-14-79	a3.48	b55
06309060	North Sunday Creek tributary No. 2 near Angela	Lat 46°34'00", long 106°03'51", in NE1/4 sec.4, T.9 N., R.45 E., Custer County, Hydrologic Unit 10100001, at culvert on State Highway 22, 13 mi (21 km) southeast of Angela, 15 mi (24 km) northwest of Miles City.	.22	1962-79	5-06-79	1.28	16
06309078	Tree Creek near Kinsey	Lat 46°33'17", long 105°47'48", in NE1/4 NW1/4 sec.10, T.9 N., R.47 E., Custer County, Hydrologic Unit 10100001, at culvert on county road, 6.5 mi (10.5 km) west of Kinsey.	4.13	1972 1974-79	3-15-79	2.48	20
06309080	Deep Creek near Kinsey	Lat 46°33'25", long 105°37'12", in SE1/4 SE1/4 sec.1, T.9 N., R.48 E., Custer County, Hydrologic Unit 10100001, at culvert on Interstate Highway 94, and and U.S. Highway 10, 2 mi (3 km) southeast of Kinsey, and 13 mi (21 km) northeast of Miles City.	11.5	1962-79	7-25-79	g	b30
06324700	Sand Creek near Broadus	Lat 45°25'48", long 105°26'28, in SE1/4 sec.5, T.5 S., R.51 E., Powder River County, Hydrologic Unit 10090207, at culverts on Moorhead road, 1.8 mi (2.9 km) southwest of Broadus.	c10.2	1955-79	7-25-79	1.60	13
06324995	Badger Creek at Biddle	Lat 45°05'46", long 105°20'17", in SW1/4 NW1/4 sec.34, T.8 S., R.52 E., Powder River County, Hydrologic Unit 10090208, at culvert on State Highway 59, 0.2 mi (0.3 km) south of Biddle.	6.06	1972-79	3-16-79	1.68	15
06325400	East Fork Little Powder River tributary near Hammond	Lat 45°18'04", long 105°05'50", in NW1/ SE1/4 sec.22, T.6 S., R.54 E., Powder River County, Hydrologic Unit 10090208, at culvert on State Highway 212, 10 mi (16 km) northwest of Hammond, 18 mi (29 km) southeast of Broadus.	3.45	1974-79	3-16-79	a7.12	b30

See footnotes at end of table, p. 789.

Annual maximum discharge at crest-stage partial-record stations--Continued

Station No.	Station name	Location	Drainage area (mi^2)	Period of record	Annual maximum		
					Date	Gage height (ft)	Discharge (ft^3/s)
		YELLOWSTONE RIVER BASIN--Continued					
06325700	Powder River tributary near Powderville	Lat 45°48'46", long 105°03'51", in NE1/4 NE1/4 sec.25, T.1 N., R.53 E., Custer County, Hydrologic Unit 10090209, at culvert on county road, 4.5 mi (7.2 km) north of Powderville.	3.20	1973-79	4-12-79	2.31	22
06325950	Cut Coulee near Mizpah	Lat 46°08'38", long 105°10'05", in NE1/4 SW1/4 sec.36, T.5 N., R.52 E., Custer County, Hydrologic Unit 10090209, at culvert on county road, 8.5 mi (13.7 km) southeast of Mizpah.	2.23	1973-79	3-16-79	a2.45	b20
06326510	Locate Creek tributary near Locate	Lat 46°25'52", long 105°10'51", in SW1/4 SE1/4 sec.23, T.8 N., R.52 E., Custer County, Hydrologic Unit 10090209, at culvert on U.S. Highway 12, 5.5 mi (8.9 km) east of Locate.	.91	1973-79	--	--	e
06326550	Cherry Creek tributary near Terry	Lat 46°51'18", long 105°20'26", in NE1/4 SW1/4 sec.25, T.13 N., R.50 E., Prairie County, Hydrologic Unit 10100004, at bridge on abandoned part of State Highway 253, 4.8 mi (7.7 km) north of Terry.	2.52	1973-79	3-16-79	a4.67	f
06326580	Lame Jones Creek tributary near Willard	Lat 46°11'40", long 104°33'05", in SE1/4 SE1/4 sec.11, T.5 N., R.57 E., Fallon County, Hydrologic Unit 10100005, at culvert on county road, 1.1 mi (1.8 km) east of Lame Jones School, 8.8 mi (14.2 km) west of Willard.	.49	1974-79	5-06-79	1.21	2
06326600	O'Fallon Creek near Ismay	Lat 46°25'17", long 104°45'40", near center of east edge of sec.30, T.8 N., R.56 E., Fallon County, Hydrologic Unit 10100005, at bridge on U.S. Highway 12, 6.5 mi (10.5 km) southeast of Ismay, 11.5 mi (18.5 km) west of Plevna, and at site of continous-record station.	669	1962-79	4-15-79	3.96	298
06326800	Pennel Creek near Baker	Lat 46°29'57", long 104°14'17", in center of south edge of sec.36, T.9 N., R.59 E., Fallon County, Hydrologic Unit 10100005, at culvert on State Highway 7, 8 mi (13 km) north of Baker.	1.00	1962-79	6-20-79	2.32	30
06326940	Spring Creek tributary near Fallon	Lat 46°48'06", long 104°59'25", in NE1/4 NE1/4 sec.13, T.12 N., R.53 E., Prairie County, Hydrologic UInit 10100004, at culvert on county road, 6.8 mi (10.9 km) southeast of Fallon.	3.10	1972-79	1975 1978 3-16-79	-- c5.89 2.80	c7 -- 36
06326950	Yellowstone River tributary No. 5 near Marsh	Lat 46°57'11", long 104°53'53", in SW1/4 sec.21, T.14 N., R.54 E., Dawson County, Hydrologic Unit 10100004, at culvert on Interstate Highway 94, and U.S. Highway 10, 2.4 mi (3.9 km) northeast of Cracker Box Creek, 2.5 mi (4.0 km) southwest of Clear Creek, 5 mi (8 km) northeast of Marsh.	.87	1962-79	3-24-79	a3.66	b5
06326960	Timber Fork Creek tributary near Lindsay	Lat 47°10'55", long 105°10'16", in SW1/4 SW1/4 sec.36, T.17 N., R.51 E., Dawson County, Hydrologic Unit 10100004, at culvert on county road, 3.3 mi (5.3 km) southwest of Lindsay.	1.23	1974-79	4-16-79	1.43	9

See footnotes at end of table, p. 789.

Annual maximum discharge at crest-stage partial-record stations--Continued

Station No.	Station name	Location	Drainage area (mi^2)	Period of record	Annual maximum Date	Annual maximum Gage height (ft)	Annual maximum Discharge (ft^3/s)
		YELLOWSTONE RIVER BASIN--Continued					
06327550	South Fork Horse Creek tributary near Wibaux	Lat 46°48'09", long 104°22'55", in SW1/4 SE1/4 sec.11, T.12 N., R.58 E., Wibaux County, Hydrologic Unit 10100004, at culvert on county road, 7.5 mi (12.1 km) west of State Highway 7, 16.0 mi (25.7 km) southwest of Wibaux.	1.73	1973-79	4-09-79	2.55	9
06327720	Griffith Creek tributary near Glendive	Lat 47°06'20", long 104°35'48", in NE1/4 NW1/4 sec.35, T.16 N., R.56 E., Dawson County, Hydrologic Unit 10100004, at culvert on Interstate Highway 94, 0.5 mi (0.8 km) east of Glendive.	3.48	1965 1974-79	7-10-79	1.65	2
06327790	Krug Creek tributary No. 2 near Wibaux	Lat 47°00'23", long 104°18'13", in NW1/4 NW1/4 sec.6, T.14 N., R.59 E., Wibaux County, Hydrologic Unit 10100004, at culvert on county road, at Interstate Highway 94 interchange, 5.5 mi (8.9 km) west of Wibaux.	.49	1974-79	4-17-79	a2.36	b12
06328100	Yellowstone River tributary No. 6 near Glendive	Lat 47°09'26", long 104°39'14", in NW1/4 SW1/4 sec.8, T.16 N., R.56 E., Dawson County, Hydrologic Unit 10100004, at bridge on county road to Belle Prairie, 3 mi (5 km) northeast of Glendive.	2.93	1974-79	7-10-79	1.51	16
06328400	Thirteenmile Creek tributary near Bloomfield	Lat 47°24'46", long 104°49'58", in SE1/4 SE1/4 sec.9 T.19 N., R.54 E., Dawson County, Hydrologic Unit 10100004, at culvert on county road, 3.9 mi (6.3 km) east of Bloomfield.	.67	1972 1974-79	4-07-79	3.10	62
06329350	Alkali Creek tributary near Sidney	Lat 47°30'34, long 104°07'03", in SW1/4 NE1/4 sec.7, T.20 N., R.60 E., Richland County, Hydrologic Unit 10100004, at culvert on county road, 7.7 mi (12.4 km) south of O'Brien Creek, 14.2 mi (22.8 km) southeast of Sidney.	.49	1974-79	4-17-79	a2.36	b26
06329510	Fox Creek tributary near Lambert	Lat 47°38'58", long 104°36'52", in NW1/4 SW1/4 sec.24, T.22 N., R.55 E., Richland County, Hydrologic Unit 10100004, at bridge on county road, 2.2 mi (3.5 km) south of Lambert.	5.01	1972 1974-79	4-10-79	3.41	12
06329570	First Hay Creek near Sidney	Lat 47°50'08", long 104°16'16", in SE1/4 sec.16, T.24 N., R.58 E., Richland County, Hydrologic Unit 10100004, at bridge on State Highway 16, 4.1 road mi (6.6 km) north of "Dryland Crop and Soils Research Station", sign, 10 mi (16 km) northwest of Sidney.	29.1	1963-79	4-18-79	3.50	950
		LITTLE MISSOURI RIVER BASIN					
06334100	Wolf Creek near Hammond	Lat 45°09'53", long 104°45'20", in SE1/4 sec.5, T.8 S., R.57 E., Carter County, Hydrologic Unit 10110201, at culvert on U.S. Highway 212, 8 mi (13 km) southeast of Hammond.	9.09	1955-79	7-25-79	2.69	60
06334330	Little Missouri River tributary near Albion	Lat 45°12'42", long 104°15'41", in SW1/4 NW1/4 sec.21, T.7 S., R.61 E., Carter County, Hydrologic Unit 10110201, at culvert on FAS Route 270, 1.8 mi (2.9 km) north of Albion.	.74	1972-79	7-25-79	1.62	2

See footnotes at end of table, p. 789.

Annual maximum discharge at crest-stage partial-record stations--Continued

Station No.	Station name	Location	Drainage area (mi^2)	Period of record	Annual maximum		
					Date	Gage height (ft)	Discharge (ft^3/s)
		LITTLE MISSOURI RIVER BASIN--continued					
06334610	Box Elder Creek tributary near Albion	Lat 45°23'20", long 104°28'38", in SE1/4 sec.19, T.5 S., R.59 E., Carter County, Hydrologic Unit 10110202 at culvert on State Highway 323, 17 mi (27 km) northwest of Albion.	0.73	1973-79	7-25-79	2.74	12
06334625	Coal Creek near Mill Iron	Lat 45°54'15", long 104°21'42", in NW1/4 SW1/4 sec.26, T.2 N., R.59 E., Carter County, Hydrologic Unit 10110202, at culvert on county road, 8 mi (13 km) northwest of Mill Iron, 8.5 mi (13.7 km) east of State Highway 7, 9.0 mi (14.5 km) east of Ekalaka.	.74	1974-79	3-15-79	a3.35	b35
06334720	Soda Creek tributary near Webster	Lat 46°00'34", long 104°05'30", in NE1/4 sec.23, T.3 N., R.61 E., Fallon County, Hydrologic Unit 10110202, at culvert, on county road, 0.3 mi (0.5 km) southeast of Webster.	2.22	1962-79	--	--	e
Part 12		KOOTENAI RIVER BASIN					
12300400	Cayuse Creek near Trego	Lat 48°36'33", long 115°01'42", in SW1/4 SW1/4 NE1/4 sec.24, T.33 N., R.27 W., Lincoln County, Hydrologic Unit 17010101, at culvert on Forest Service road, 9.8 mi (15.8 km) southwest of Trego.	5.29	1972-79	5-06-79	.93	41
12300800	Deep Creek near Fortine	Lat 48°45'41", long 114°52'32", in SW1/4 sec.30, T.35 N., R.25 W., Lincoln County, Hydrologic Unit 17010101, at culvert on county road, 1.2 mi (1.9 km) east of Fortine.	18.9	1959-79	5-27-79	2.72	132
12301993	Wolf Creek tributary near Libby	Lat 48°23'52", long 114°55'05', in NW1/4 NE1/4 NE1/4 sec.4, T.30 N., R.26 W., Lincoln County, Hydrologic Unit 17010102, at Burlington Northern railroad culvert, 0.3 mi (0.5 km) upstream from mouth, 28.8 mi (46.3 km) east of Libby.	2.76	1974-79	5-06-79	.83	22
12301997	Richards Creek near Libby	Lat 48°15'31", long 115°11'57", in SE1/4 NW1/4 SE1/4 sec.20, T.29 N., R.28 W., Lincoln County, Hydrologic Unit 17010102, at bridge on county road, 0.1 mi (0.2 km) upstream from mouth, 18.5 mi (29.8 km) southeast of Libby.	9.50	1973-79	5-06-79	.95	21
12302400	Shaughnessy Creek near Libby	Lat 48°18'11", long 115°35'37", in W1/2 sec.5, T.29 N., R.31 W., Lincoln County, Hydrologic Unit 17010101, at culvert on county road, 6.5 mi (10.5 km) southwest of Libby.	1.16	1975-79	5-06-79	1.58	4
12303400	Ross Creek near Troy	Lat 48°12'26", long 115°52'08", in SE1/4 NE1/4 sec.8, T.28 N., R.33 W., Lincoln County, Hydrologic Unit 17010101, at bridge on forest service road, 11.3 mi (18.2 km) north of Heron, 17.5 mi (28.2 km) south of Troy at site of former water-quality station.	23.8	1972-79	5-06-79	3.93	740

See footnotes at end of table, p. 789.

Annual maximum discharge at crest-stage partial-record stations--Continued

Station No.	Station name	Location	Drainage area (mi²)	Period of record	Date	Annual maximum Gage height (ft)	Annual maximum Discharge (ft³/s)
		KOOTENAI RIVER BASIN--Continued					
12303440	Camp Creek near Troy	Lat 48°18'46", long 115°50'35", in SW1/4 SE1/4 sec.32, T.30 N., R.33 W., Lincoln County, Hydrologic Unit 17010101, at bridge on Forest Service road, 0.8 mi (1.3 km) east of Highway 202, 12.6 mi (20.3 km) south of Troy.	11.3	1972-79	5-27-79	1.57	180
12304060	Blacktail Creek near Yaak	Lat 48°57'03", long 115°32'27", in SW1/4 SW1/4 sec.20, T.37 N., R.30 W., Lincoln County, Hydrologic Unit 17010103, at bridge on Forest Service road, 200 ft (61 m) upstream from mouth, 10.3 mi (16.6 km) northeast of Yaak.	8.66	1964 1972-79	5-05-79	.90	38
12304120	Zulu Creek near Yaak	Lat 48°43'49", long 115°38'30", in NW1/4 NW1/4 sec.8, T.34 N., R.31 W., Lincoln County, Hydrologic Unit 17010103, at culvert on South Fork Yaak River road, 8.5 mi (13.7 km) south of Yaak.	5.27	1972-79	5-05-79	1.12	31
12304300	Cyclone Creek near Yaak	Lat 48°45'01", long 115°54'06", SE1/4 sec.32, T.35 N., R.33 W., Lincoln County, Hydrologic Unit 17010103, at bridge, 0.2 mi (0.3 km) upstream from mouth, 10.5 mi (16.9 km) southwest of Yaak.	5.71	1960-79	5-05-79	1.00	120
		PEND OREILLE RIVER BASIN					
12323300	Smith Gulch near Silver Bow	Lat 45°57'26", long 112°39'45", in N1/2 sec.1, T.2 N., R.9 W., Silver Bow County, Hydrologic Unit 17010201, at culvert on Interstate Highway 15 and U.S. Highway 91, 4 mi (6 km) south of Silver Bow.	4.36	1959-79	5-05-79	2.77	4
12324250	Cottonwood Creek at Deer Lodge	Lat 46°23'59", long 112°43'02", in NE1/4 SW1/4 sec.33, T.8 N., R.9 W., Powell County, Hydrologic Unit 17010201, at culverts on county road and U.S. Highway 10 in Deer Lodge.	45.4	1975-79	5-26-79	3.18	210
12324700	Clark Fork tributary near Drummond	Lat 46°36'58", long 113°02'08", in SW1/4 sec.18, T.10 N., R.11 W., Powell County, Hydrologic Unit 17010201, 0.5 mi (0.8 km) upstream from Interstate Highway 90 and U.S. Highway 10, 6.5 mi (10.5 km) east of Drummond.	4.61	1958-79	3-08-79	1.77	92
12331700	Edwards Gulch at Drummond	REVISED.--Lat 46°40'16", long 113°08'39", in NE1/4 NE1/4 sec.31, T.11 N., R.12 W., Granite County, Hydrologic Unit 17010201, at culvert on downstream side of Interstate Highway 90 and U.S. Highway 10 at Drummond.	4.69	1960-62 1974-79	3-17-79	2.24	25
12338600	Monture Creek at Forest Service boundary, near Ovando	Lat 47°05'37", long 113°09'10", in SW1/4 SW1/4 sec.32, T.16 N., R.12 W., Powell County, Hydrologic Unit 17010203, 800 ft (240 m) upstream from Forest Service boundary, 5.2 mi (8.4 km) north of Ovando.	105	1964 1974-79	5-27-79	--	[h]1,590

See footnotes at end of table, p. 789.

Annual maximum discharge at crest-stage partial-record stations--Continued

Station No.	Station name	Location	Drainage area (mi^2)	Period of record	Date	Annual maximum Gage height (ft)	Annual maximum Discharge (ft^3/s)
		PEND OREILLE RIVER BASIN--Continued					
12339300	Deer Creek near Seeley Lake	Lat 47°12'37", long 113°32'27", in SE1/4 SW1/4 sec.20, T.17 N., R.15 W., Missoula County, Hydrologic Unit 17010203, at bridge on county road, 3.5 mi (5.6 km) northwest of Seeley Lake.	19.8	1974-79	7-07-79	2.26	225
12339900	West Twin Creek near Bonner	Lat 46°54'44", long 113°42'50", in SW1/4 sec.2, T.13 N., R.17 W., Missoula County, Hydrologic Unit 17010203, at bridge on State Highway 200, 8 mi (13 km) east of Bonner.	7.33	1959-79	5-16-79	.67	b80
12342950	Trapper Creek near Conner	Lat 45°53'43", long 114°10'51", in SE1/4 SE1/4 sec.27, T.2 N., R.21 W., Ravalli County, Hydrologic Unit 17010205, at bridge on State Highway 473, 4.5 mi (7.2 km) southwest of Conner.	28.5	1974-79	5-24-79	1.87	390
12344300	Burke Gulch near Darby	Lat 46°01'28", long 114°08'45", in S1/2 sec.12, T.3 N., R.21 W., Ravalli County, Hydrologic Unit 17010205, 1 mi (2 km) upstream from mouth, 1.5 mi (2.4 km) east of Darby.	c6.50	1958-79	8-31-79	1.56	18
12345850	Sleeping Child Creek near Hamilton	Lat 46°07'58", long 114°03'26", in SE1/4 SW1/4 NW1/4 sec.2, T.4 N., R.20 W., Ravalli County, Hydrologic Unit 17010205, Bitterroot National Forest, on right bank 5.8 mi (9.3 km) upstream from mouth, and 10.8 mi (17.4 km) southeast of Hamilton.	62.6	1958-59‡ 1973-77‡ 1978-79	5-24-79	4.26	534
12353250	Ninemile Creek near Alberton	Lat 47°11'09", long 114°35'13", in SE1/4 SE1/4 sec.36,T.17 N., R.24 W., Missoula County, Hydrologic Unit 17010204, 400 ft (122 m) upstream from large right bank diversion ditch, 14.2 mi (22.8 km) northwest of Alberton.	50.2	1972 1974-79	5-24-79	1.90	400
12353800	Thompson Creek near Superior	Lat 47°11'55", long 114°55'00", in SW1/4 sec.28, T.17 N., R.26 W., Mineral County, Hydrologic Unit 17010204, 1.2 mi (1.9 km) west of Superior (discontinued).	11.8	1961-79	5-24-79	--	b40
12355350	Big Creek at Big Creek ranger station, near Columbia Falls	Lat 48°36'07", long 114°09'55", in SW1/4 SW1/4 sec.22, T.33 N., R.20 W., Flathead County, Hydrologic Unit 17010206, Flathead National Forest, at Big Creek ranger station, 0.4 mi (0.6 km) upstream from mouth, 16.0 mi (25.7 km) north of Columbia Falls.	82.1	1964 1973-79	5-27-79	4.79	1,250
12356500	Bear Creek near Essex	Lat 48°16'56", long 113°25'23", in SE1/4 NW1/4 NE1/4 sec.16, T.29 N., R.14 W., Flathead County, Hydrologic Unit 17010207, 1.1 mi (1.8 km) upstream from bridge on U.S. Highway 2, 8.5 mi (13.7 km) northeast of Essex at site of former gaging station.	20.4	1946-52‡ 1964 1975-79	5-27-79	4.54	470
12369250	Holland Creek near Condon	Lat 47°26'20", long 113°40'11", in NE1/4 NW1/4 sec.5, T.19 N., R.16 W., Missoula County, Hydrologic Unit 17010211, at bridge on State Highway 209, 6.8 mi (10.9 km) south of Condon.	22.3	1974-79	5-27-79	2.69	265

See footnotes at end of table, p. 789.

Annual maximum discharge at crest-stage partial-record stations--Continued

Station No.	Station name	Location	Drainage area (mi^2)	Period of record	Date	Annual maximum Gage height (ft)	Annual maximum Discharge (ft^3/s)
		PEND OREILLE RIVER BASIN--Continued					
12370500	Dayton Creek near Proctor	Lat 47°54'59", long 114°20'14", in NW1/4 sec.20, T.25 N., R.21 W., Lake County, Hydrologic Unit 17010208, at culvert on county road, 2.5 mi (4.0 km) northwest of Proctor.	18.5	1959-79	5-06-79	3.39	82
12389150	McGregor Creek tributary near Marion	Lat 48°01'44", long 114°55'54", in NW1/4 NE1/4 sec.10, T.26 N., R.26 W., Flathead County, Hydrologic Unit 17010213, 250 ft (76 m) upstream from forest service road, 0.4 mi (0.6 km) upstream from mouth, 13.4 mi (21.7 km) southwest of Marion.	2.55	1972-79	5-06-79	.95	18
12391100	White Pine Creek near Trout Creek	Lat 47°44'19", long 115°40'27", in SW1/4 SW1/4 NW1/4 sec.23, T.23 N., R.32 W., Sanders County, Hydrologic Unit 17010213, Kaniksu National Forest, at bridge, 7.5 mi (12.1 km) southwest of Trout Creek.	8.75	1974-79	5-06-79	3.86	185
12391200	Canyon Creek near Trout Creek	Lat 47°51'16", long 115°29'57", in SW1/4 NW1/4 sec.7, T.24 N., R.30 W., Sanders County, Hydrologic Unit 17010213, at bridge on forest service road, 4.6 mi (7.4 km) northeast of Trout Creek.	8.64	1972 1974-79	5-06-79	2.23	135
12391430	Skeleton Creek near Noxon	Lat 47°57'47", long 115°53'18", in SW1/4 SW1/4 sec.32, T.26 N., R.33 W., Sanders County, Hydrologic Unit 17010213, at culvert on forest service road, 0.4 mi (0.6 km) upstream from West Fork Pilgrim Creek, 5.7 mi (9.2 km) southwest of Noxon.	2.10	1973-79	5-06-79	1.46	22
12391525	Snake Creek near Noxon	Lat 48°07'24", long 115°45'10", in SW1/4 SW1/4 sec.5, T.27 N., R.32 W., Sanders County, Hydrologic Unit 17010213, at culvert on forest service road, 9.0 mi (14.5 km) north of Noxon.	3.11	1972-79	5-06-79	2.16	52

‡ Operated as a continuous-record station.
a Backwater.
b About.
c Revised.
d Maximum observed.
e No evidence of flow during year.
f Not determined.
g Peak discharge did not reach bottom of gage.
h Combination of flow in Monture and Dunham Creeks.

Measurements at miscellaneous sites

Measurements of streamflow at points other than gaging stations are given in the following table.

Discharge measurements made at miscellaneous sites during water year 1979

Stream	Tributary to	Location	Drainage area (mi^2)	Measured previously (water years)	Measurements	
					Date	Discharge (ft^3/s)
		Missouri River basin				
Sevenmile Creek 06064000	Tenmile Creek	Lat 46°38'13", long 112°05'00", on section-line between sections 10 and 11, T.10 N., R.4 W., Lewis and Clark County, 1.4 mi (2.3 km) upstream from Tenmile Creek, and 4 mi (6 km) northwest of Helena.		1978	10-13-78 10-17-78 11-09-78 5-04-79	3.4 3.0 5.8 18
		Little Prickly Pear basin				
Little Prickly Pear Creek 465841112045301	Missouri River	Lat 46°58'41", long 112°04'53", in SW1/4 SW1/4 SW1/4 sec.11, T.14 N., R.4 W., Lewis and Clark County, 200 ft (61 m) downstream from Sheep Creek, 2.1 mi (3.4 km) south of Wolf Creek.			7-20-79	43
		Smith River basin				
Smith River 472332111265501	Missouri River	Lat 47°23'32", long 111°26'55", on section line between SW1/4 SW1/4 sec.14 and NW 1/4 NW 1/4 sec.23, T.19 N., R.2 E., Cascade County, at county bridge on Highway 330, approximately 3 mi (5 km) above mouth.		1976, 1978	5-09-79	1,210
		Marias River basin				
Birch Creek 481935112324901	Marias River	Lat 48°19'35", long 112°32'49", in SE1/4 SW1/4 sec.29, T.30 N., R.7 W., Pondera County, 150 ft (460 m) downstream from bridge on U.S. Highway 89, 10 mi (16 km) north of Dupuyer.		1977-78	10-10-78	4.9
North Fork Cut Bank Creek 483630113171001	Two Medicine River	Lat 48°36'30", long 113°17'10", in NE1/4 NW1/4 NE1/4 sec.22, T.33 N., R.13 W., Glacier County, at bridge on U.S. Highway 89, 4.4 mi (7.1 km) north of Kiowa, and 14 mi (23 km) northwest of Browning.		1920, 1922, 1978	10-10-78	38
South Fork Cut Bank Creek 483324113161001	Cut Bank Creek	Lat 48°33'24", long 113°16'10", in SE1/4 SE1/4 SE1/4 sec.3, T.32 N., R.13 W., Glacier County, at bridge on U.S. Highway 89, 0.7 mi (1.1 km) north of Kiowa, and 12 mi (19 km) west of Browning.		1978	10-10-78	11

See footnotes at end of table, p. 811.

Discharge measurements made at miscellaneous sites during water year 1979

Stream	Tributary to	Location	Drainage area (mi^2)	Measured previously (water years)	Measurements	
					Date	Discharge (ft^3/s)
		Musselshell River basin				
Rehder Creek 06126450	Musselshell River	Lat 46°18'41", long 108°29'03", in NE1/4 SW1/4 SW1/4 sec.33, T.7 N., R.26 E., Musselshell County, 100 ft (30 m) upstream from mouth, and 6.5 mi (10.5 km) southeast of Klein, at site of water-quality station.	23.1	1978	11-07-78	0
					12-14-78	0
					1-09-79	0
					2-06-79	0
					3-07-79	0
					3-08-79	0
					4-12-79	0
					7-13-79	0
					8-09-79	0
					9-07-79	0
East Parrot Creek 06127150	Parrot Creek	(Revised) Lat 46°22'55", long 108°20'15", in SW1/4 SW1/4 sec.3, T.7 N., R.27 E., Musselshell County, Hydrologic Unit 10040202, 5.15 mi (8.29 km) upstream from mouth, and 11 mi (18 km) southeast of Roundup, at site of water-quality sation (station relocated May 11, 1979).	20.2	1978	10-11-78	0
					11-07-78	0
					12-12-78	0
					1-11-79	0
					2-08-79	0
					3-07-79	0
					3-11-79	0
					4-13-79	0
					5-11-79	1.0
					6-05-79	.67
					7-11-79	.39
					8-09-79	.33
					9-06-79	.51
West Parrot Creek 06127160	Parrot Creek	Lat 46°25'57", long 108°25'07", in NW1/4 NE1/4 SW1/4 sec.24, T.8 N., R.26 E., Musselshell County, 1.0 mi (1.6 km) upstream from mouth, and 4.5 mi (7.2 km) east of Roundup, at site of water-quality station.	20.5	1978	10-11-78	a.01
					11-07-78	a.01
					12-12-78	a.01
					1-11-79	a.01
					2-08-79	a.01
					3-07-79	a<.10
					3-08-79	.23
					3-11-79	.23
					4-12-79	.18
					5-13-79	.20
					6-14-79	.33
					7-11-79	a<.15
					8-09-79	.57
					9-06-79	.41
Fattig Creek 06127300	Musselshell River	Lat 46°29'58", long 108°16'40", in NE 1/4 NE 1/4 NE 1/4 sec.24, T.7 N., R.,27 E., Musselshell County, approximately 5 mi (8 km) upstream from Carters Coulee, and 11.5 mi (18.5 km) south of Delphia, at site of water-quality station.	22.9	1978	10-11-78	0.14
					11-07-78	a.20
					12-12-78	a.01
					1-11-79	a.01
					2-08-79	a.01
					3-08-79	3.0
					4-13-79	5.3
					5-11-79	4.0
					6-05-79	1.4
					7-11-79	.50
					8-08-79	.32
					9-06-79	.35

See footnotes at end of table, p. 811.

Discharge measurements made at miscellaneous sites during water year 1979

Stream	Tributary to	Location	Drainage area (mi^2)	Measured previously (water years)	Measurements	
					Date	Discharge (ft^3/s)
		Big Dry Creek Basin				
Crow Rock Creek 06130935	Little Dry Creek	Lat 47°03'45", long 106°14'11", in SE1/4 SE1/4 SE1/4 sec.11, T.15 N., R.43 E., Garfield County, on right bank at county road, 2.6 mi (4.2 km) upstream from mouth, 16.5 mi (26.6 km) north of Rock Springs, at site of water-quality station.	213	1978	3-22-79	97
					4-04-79	6.7
					5-31-79	.22
					6-13-79	<.01
					7-03-79	0
					7-16-79	0
					8-07-79	0
		Timber Creek basin				
Timber Creek 06131120	Fort Peck Lake	Lat 47°24'20', long 106°10'25", in SE1/4 SE1/4 NE1/4 sec.13, T.19 N., R.43 E., McCone County, at State Highway 24 bridge, about 9 mi (15 km) south of Nelson Creek, at site of water-quality station.	287	1976-78	11-13-78	.81
					12-12-78	.40
					1-08-79	0
					2-20-79	0
					3-21-79	47
					4-17-79	128
					5-08-79	27
					6-04-79	3.0
					7-02-79	.59
					8-20-79	.10
					9-11-79	.11
		Milk River basin				
Big Sandy Creek 481024109493201	Milk River	Lat 48°10'24", long 109°49'32", in NW1/4 SE1/4 NW1/4 sec.20, T.28 N., R.15 E., Choteau County, 1,000 ft (305 m) downstream from reservation boundary, 6 mi (10 km) south of Rocky Boy.		1978	10-06-78	6.4
McEachern Creek 06170000	Rock Creek	Lat.48°59'30", long 106°55'40", in SW1/4 sec.1, T.37 N., R.36 E., Hydrologic Unit 10050015, on left bank, 0.5 mi (0.8 km) downstream from East Fork, 0.7 mi (1.1 km) south of international boundary, and 8 mi (13 km) north of Thoeny at site of water-quality station.	182	1924-76‡ 78	4-10-79	62
					4-26-79	96
					5-14-79	15
		Redwater River basin				
Horse Creek 06177520	Redwater River	Lat.47°25'29", long 105°36'54", in NW1/4 NW1/4 sec.9, T.19 N., R.48 E., McCone County, at bridge on county road, 1 mi (2 km) north of Circle, at site of water-quality station.	101	1976-77	10-11-78	.66
					11-14-78	.99
					12-12-78	0
					3-19-79	20
					4-11-79	126
					5-09-79	15
					6-05-79	2.8
					7-10-79	1.4
					8-21-79	.5
					9-11-79	0

See footnotes at end of table, p. 811.

Discharge measurements made at miscellaneous sites during water year 1979

Stream	Tributary to	Location	Drainage area (mi²)	Measured previously (water years)	Measurements Date	Measurements Discharge (ft³/s)
		Poplar River basin				
Poplar River 06178150	Missouri River	Lat 48°52'23", long 105°29'50", in NE1/4 SE1/4 sec.13, T.36 N., R.47 E., 200 ft (160 m) upstream from county road crossing, 6 mi (10 km) upstream from East Fork, 6.4 mi (10.3 km) northwest of Scobey at site of water-quality station.	572	1975-78	10-24-78	12
					11-15-78	10
					12-14-78	5.7
					1-16-79	a.10
					3-22-79	a200
					3-28-79	a150
					5-09-79	a150
					6-21-79	9.3
					7-19-79	a.40
					8-15-79	a.50
					9-19-79	a2.0
Poplar River 06179200	Missouri River	Lat 48°33'05", long 105°21'55", in NW1/4 SW1/4 SW1/4 sec.4, T.32 N., R.49 E., Roosevelt County, at county road bridge, 3.8 mi (6.1 km) upstream from West Fork, 4.4 mi (7.1 km) northwest of Bredette, at site of water-quality station.	1,745	1976-78	10-23-78	28
					11-14-78	33
					12-12-78	12
					1-16-79	0
					3-28-79	a400
					5-10-79	a500
					6-19-79	34
					7-18-79	9.5
					8-16-79	7.2
					9-18-79	7.8
West Fork Poplar River 06179500	Poplar River	Lat 49°00'00", long 106°22'00", in SE1/4 sec.5, T.1 N.,R.3 W., Third meridian, at West Poplar Canadian Customs Post, 100 ft (30 m) north of international boundary, 6 mi (10 km) upstream from Roanwood Coulee, 10 mi, (16 km) north of Opiem, at site of water-quality station.	139	1931-35‡ 1938-51‡ 1975-78	10-16-78	0.32
					11-29-78	.54
					12-26-78	a.25
					1-24-79	0
					3-31-79	5.8
					4-12-79	150
					4-27-79	31
					5-21-79	4.3
					6-04-79	1.5
					7-19-79	1.3
					8-27-79	.03
					9-18-79	.20
West Fork Poplar River 06180400	Poplar River	Lat 48°33'01", long 105°25'42", in SW1/4 SW1/4 sec. 1, T.32 N., R.48 E., Roosevelt County, at bridge on State Highway 13, 5.9 mi (9.5 km) upstream from mouth, and 6.6 mi (10.6 km) northwest of Bredette.	1,010	1954 1976-78	10-23-78	16
					11-14-78	17
					12-12-78	6.4
					1-16-79	a.50
					3-28-79	a300
					4-11-79	3160
					5-17-79	82
					6-19-79	12
					7-18-79	17
					8-16-79	4.6
					9-18-79	2.5

Discharge measurements made at miscellaneous sites during water year 1979

Stream	Tributary to	Location	Drainage area (mi²)	Measured previously (water years)	Measurements Date	Measurements Discharge (ft³/s)
		Yellowstone River basin				
Yellowstone River 454413108315901	Missouri River	Lat 45°44'13", long 108°31'59", in SW1/4 NE1/4 NE1/4 sec.20, T.1 S., R.26 E., Yellowstone County, at county bridge on State Highway 416 1,000 ft (310 m) downstream from Blue Creek, and 3 mi (5 km) south of Billings.			4-04-79	4140
Huntley Project Drain No. 7 455936108102201	Diverts from Yellowstone River	Lat 45°59'36", long 108°10'22", in NW1/4 NE1/4 SW1/4 sec.19, T.3 N., R.29 E., Yellowstone County, at downstream side of bridge on farm road, 0.25 mi (0.40 km) upstream from mouth, 2.2 mi (3.5 km) northwest of Worden, at site of water-quality station.		1977-78	10-17-78	3.0
					12-04-78	.88
					12-12-78	.85
					1-11-79	.78
					3-08-79	.70
					3-19-79	1.5
					4-17-79	1.0
					5-16-79	.70
					6-20-79	11
					7-18-79	6.0
					8-22-79	5.9
					9-13-79	10
Gravel Pit Coulee 455713108045901	Arrow Creek	Lat 45°57'13", long 108°04'59", in NW1/4 SE1/4 NW1/4 sec.2, T.2 N., R.29 E., Yellowstone County, 200 ft (61 m) north of Burlington Northern railroad tracks and 3 mi (5 km) southeast of Worden.			8-13-79	.64
					8-24-79	1.4
Unnamed Open Drain 45571510845901	Gravel Pit Coulee	Lat 45°57'15", long 108°04'59", in SW1/4 NE1/4 NW1/4 sec.2, T.2 N., R.29 E., Yellowstone County, about 450 ft (140 m) north of Burlington Northern railroad tracks, and 3 mi (5 km) southeast of Worden.			8-25-79	.70
Tullock Creek 454709107180501	Bighorn River	Lat 45°47'09", long 107°18'05", in SE1/4 SE1/4 sec.36, T.1 N., R.35 E., Bighorn County, at bridge, 15 mi (24 km) northeast of Hardin, and 26 mi (42 km) south of Bighorn.		1977-78	10-24-78	4.0

See footnotes at end of table, p. 811.

Discharge measurements made at miscellaneous sites during water year 1979

Stream	Tributary to	Location	Drainage area (mi^2)	Measured previously (water years)	Measurements	
					Date	Discharge (ft^3/s)
		Yellowstone River basin--Continued				
Tullock Creek 06294690	Bighorn River	Lat 46°05'08", long 107°24'20", in NE1/4 NE1/4 NE1/4 sec.19, T.4 N., R.35 E., Treasure County, Hydrologic Unit 10080015, on right bank, at old diversion dam, 0.3 mi (0.5 km) upstream from Thunder Creek, 5.6 mi (9.0 km) south of Bighorn, 8 mi (13 km) upstream from mouth, and at continuous surface-water station.	446	b	10-24-78	5.2
Sarpy Creek 454947107064401	Yellowstone River	Lat 45°49'47", long 107°06'44", in SW1/4 SW1/4 sec.15 T.1 N., R.37 E., Bighorn County, about 20 ft (6 m) upstream from county bridge, 0.2 mi (0.3 km) upstream from Spring Creek, and 28 mi (45 km) northeast of Hardin.		1978	10-26-78	c0.21
East Fork Sarpy Creek 454900106594401	Sarpy Creek	Lat 45°49'00", long 106°59'44", in NW1/4 SW1/4 sec.22, T.1 N., R.38 E., Bighorn County, at county bridge, 2.2 mi (3.5 km) northwest of Sarpy school, and 19 mi (31 km) west of Colstrip.		1978	10-26-78	.78
Sarpy Creek 455704107083001	Yellowstone River	Lat 45°57'04", long 107°08'30", in SW1/4 NE1/4 sec.5, T.2 N.,R.37 E., Treasure County, at farm bridge crossing, 0.1 mi (0.2 km) downstream from Iron Spring Coulee, and 20 mi (32 km) southeast of Bighorn.		1978	10-26-78 10-26-78	.75 .78
Sarpy Creek 460234107070401	Yellowstone River	Lat 46°02'34", long 107°07'40", in NE1/4 NE1/4 sec.4, T.3 N., R.37 E., Treasure County, at county bridge, 0.5 mi (0.8 km) upstream from Beaver Creek, and 18 miles (29 km) southeast of Bighorn.		1978	10-26-78	.44
Sarpy Creek 06294940	Yellowstone River	Lat 46°14'12", long 107°08'03", in SE1/4 SE1/4 sec.30, T.6 N., R.37 E., Treasure County, on left bank, 100 ft (30 m) upstream from bridge on FAS Route 415, 0.8 mi (1.3 km) upstream from Hysham Canal, and 5.5 mi (8.8 km) southeast of Hysham, at site of continuous record station.	453	b	10-26-78 10-26-78	2.4 2.2

e footnotes at end of table, p. 811.

Discharge measurements made at miscellaneous sites during water year 1979

Stream	Tributary to	Location	Drainage area (mi^2)	Measured previously (water years)	Measurements	
					Date	Discharge (ft^3/s)
		Yellowstone River basin--Continued				
East Fork Armells Creek 455233106373501	Armells Creek	Lat 45°52'33", long 106°37"35", in SW1/4 SW1/4 sec.34, T.2 N., R.41 E., Rosebud County, at State Highway 39 bridge, 0.5 mi (0.8 km) south of Colstrip.		1978	10-26-78	c.01
East Fork Armells Creek 06294980	Armells Creek	Lat 45°58'42", long 106°38'38", in SE1/4 SW1/4 SW1/4 sec.28, T.3 N., R.41 E., Rosebud County, on private road bridge, 0.9 mi (1.4 km) downstream from Corral Creek, 6.7 mi (10.8 km) north of Colstrip at site of water-quality station.	97.3	1975-78	10-03-78	0.51
					11-08-78	a<1.0
					12-12-78	1.9
					1-17-79	a<1.0
					2-06-79	0
					3-12-79	56
					4-10-79	4.5
					5-08-79	3.0
					6-06-79	1.1
					7-08-79	0
					8-09-79	0
					9-13-79	0
West Fork Armells Creek 455922106502901	Armells Creek	Lat 45°59'22", long 106°50'29", in NW1/4 NE1/4 sec.26 T.3 N., R.39 E., Rosebud County, 0.1 mi (0.2 km) downstream from Trail Creek, and 13 mi (21 km) northwest of Colstrip.		1978	10-26-79	.47
Armells Creek 460902106474301	Yellowstone River	Lat 46°09'02", long 106°47'43", in NW1/4 NW1/4 sec.36 T.5 N., R.39 E., Rosebud County, at county bridge on FAS 315, 0.2 mi (0.3 km) upstream of Cottonwood Creek, 10 mi (16 km) southwest of Forsyth.			10-26-78	1.8
Armells Creek 06294995	Yellowstone River	Lat 46°14'59", long 106°48'22", in SE1/4 NW1/4 NE1/4 sec.26, T.6 N., R.39 E., Rosebud County, on right bank 300 ft (90 m) upstream from bridge on Interstate Highway I-94, 2 mi (3 km) upstream from mouth, and 6 mi (10 km) southwest of Forsyth at site of continuous record station.	370	b	10-26-78	2.4
Rosebud Creek 451302106583201	Yellowstone River	Lat 45°13'02", long 106°58'32", in NE1/4 SE1/4 sec.20, T.7 S., R.39 E., Bighorn County, at farm road crossing on Kobold Ranch, 0.1 mi (0.2 km) south of county road, and 15 mi (24 km) south of Busby.		1978	10-25-78	4.1

See footnotes at end of table, p. 811.

Discharge measurements made at miscellaneous sites during water year 1979

Stream	Tributary to	Location	Drainage area (mi^2)	Measured previously (water years)	Measurements	
					Date	Discharge (ft^3/s)
		Yellowstone River basin--Continued				
Rosebud Creek 06295110	Yellowstone River	Lat 45°19'59", long 106°59'10", in SW1/4 SE1/4 NW1/4 sec.8, T.6 S., R.39 E., Bighorn County, at private bridge at Kirby, 50 ft (15 m) downstream from confluence of Cache Creek, at site of water-quality station (discontinued).	116	1978	10-03-78	17
					10-25-78	19
					10-25-78	18
					12-12-78	15
					2-06-79	13
					3-27-79	51
					4-10-79	110
					5-08-79	75
					6-19-79	28
					7-23-79	12
					9-10-79	6.6
Rosebud Creek 454044106415601	Yellowstone River	Lat 45°40'44", long 106°41'56", in NE1/4 SW1/4 sec.8, T.2 S., R.41 E., Rosebud County, at private road crossing, 0.6 mi (1.0 km) west of Jimtown, 4 mi (6 km) north of Lame Deer.		1978	10-25-79	56
Rosebud Creek 06295250	Yellowstone River	Lat 45°46'03", long 106°34'10", in SE1/4 SW1/4 NE1/4 sec.8 T.1 S., R.42 E., Rosebud County, on left bank, 10 ft (3 m) downstream from Lee Coulee, and 8.4 mi (13.5 km) southeast of Colstrip, at site of continuous record station.	799	b	10-25-78	53
Rosebud Creek 454945106252201	Yellowstone River	Lat 45°49'45", long 106°25'22", in NE1/4 NE1/4, sec.19, T.1N., R.43E., Rosebud County, at county road bridge, 0.6 mi (1.0 km) downstream from Greenleaf Creek, 34.5 mi (55.5 km) south of Rosebud.		1978	10-25-78	49
Snider Creek 06295420	Rosebud Creek	Lat 45°55'39", long 106°23'02", in S1/2 NE1/4 sec.16, T.2 N., R.43 E., Rosebud County, at county road crossing, 0.3 mi (0.5 km) upstream from mouth, and 7.8 mi (12.6 km) northwest of Brandenberg, at site of water-quality station.	12.7	1978	10-04-78	0
					11-08-78	0
					12-13-78	0
					1-17-79	0
					2-07-79	0
					3-12-79	0
					3-20-79	52
					4-11-79	0
					5-09-79	0
					6-06-79	0
					7-18-79	0
					8-09-79	0
					9-13-79	0

See footnotes at end of table, p. 811.

Discharge measurements made at miscellaneous sites during water year 1979

Stream	Tributary to	Location	Drainage area (mi^2)	Measured previously (water years)	Measurements	
					Date	Discharge (ft^3/s)
		Yellowstone River basin--Continued				
Rosebud Creek 460557106264601	Yellowstone River	Lat 46°05'57", long 106°26'46", in NW1/4 SE1/4 sec.13, T.4 N., R.42 E., Rosebud County, at farm road bridge crossing, 0.1 mi (0.2 km) upstream from Cottonwood Creek, 0.2 mi (0.3 km) west of county road, 12 mi (19 km) south of Rosebud.		1978	10-25-78	49
Rosebud Creek 06296003	Yellowstone River	Lat 46°15'53", long 106°28'30", in SW1/4 NW1/4 NE1/4 sec.21, T.6 N., R.42 E., Rosebud County, on left bank, 0.4 mi (0.6 km) upstream from bridge on Highway I-94, 0.8 mi (1.3 km) upstream from mouth, and 1.6 mi (2.6 km) southwest of Rosebud, at site of continuous-record station.	1,302	b	10-25-78	50
		Missouri River basin				
Yellowstone River 06296120	Missouri River	Lat 46°23'51", long 105°53'36", in SE1/4 SW1/4 sec.31, T.8 N., R.47 E., Custer County, at Ft. Keogh bridge, 2.4 mi (3.9 km) upstream from surface water gage, 1.6 mi (2.6 km) upstream from mouth of Tongue River, and 2 mi (3 km) west of Miles City, at site of water-quality station.	42,847	1977-78	7-05-79	22,500
		Tongue River basin				
Prairie Dog Creek 06306250	Tongue River	Lat 44°59'02", long 106°50'21", in NE1/4 SW1/4 SW1/4 sec.23, T.58 N., R.83 W., Sheridan County, on right bank, 600 ft (180 m) upstream from county bridge, 0.9 mi (1.5 km) upstream from mouth, 2.8 mi (4.5 km) downstream from Coutant Creek, and 7.6 mi (12.2 km) northeast of Acme, WY, at site of continuous-record station.	358	b	10-19-78	38
Tongue River 06306300	Yellowstone River	Lat 45°00'32", long 106°50'08", in NW1/4 NE1/4 sec.33, T.9 S., R.40 E., Big Horn County, on left bank, 1 mi (2 km) north of Wyoming-Montana State line, 1.4 mi (2.3 km) upstream from Badger Creek, and 1.4 mi (2.3 km) upstream from Decker, at site of continuous-record station.	1,477	b	10-19-78	371

See footnotes at end of table, p. 811.

Discharge measurements made at miscellaneous sites during water year 1979

Stream	Tributary to	Location	Drainage area (mi^2)	Measured previously (water years)	Measurements Date	Measurements Discharge (ft^3/s)
		Tongue River basin--Continued				
Spring Creek 06306900	Tongue River	Lat 45°05'09", long 106°50'12", in SE1/4 sec.33, T.8 S., R.40 E., Big Horn County, at bridge on county road, 1 mi (2 km) upstream from mouth, 5 mi (8 km) north of Decker, at site of water-quality station.	34.7	1978	2-21-79	0
					3-28-79	0
					6-19-79	0
Tongue River 06307500	Yellowstone River	Lat 45°08'29", long 106°46'15", in SW1/4 SE1/4 SE1/4 sec.12, T.8 S., R.40 E., Big Horn County, on left bank, 0.5 mi (0.8 km) downstream from Tongue River Dam, 4 mi (6 km) upstream from Post Creek, 8 mi (13 km) northeast of Decker, 16 mi (26 km) southeast of Kirby, and at mile 162.3 (261.1 km), at site of continuous-record station.	1,770	b	10-19-78	124
					10-19-78	130
Tongue River 451259106413601	Yellowstone River	Lat 45°12'59", long 106°41'36", in NE1/4 SW1/4 NE1/4 sec.22, T.7 S., R.41 E., Rosebud County, 1 mi (2 km) downstream from Fourmile Creek, at Petre Ranch 17 mi (27 km) northeast of Decker, at mile 184.5 (296.9 km).		1976, 1978	10-19-78	121
Prairie Dog Creek 06307525	Tongue River	Lat 45°20'08", long 106°46'25", in SE1/4 NW1/4 NE1/4 sec.12, T.6 S., R.40 E., Big Horn County, on left bank, about 4.1 mi (6.6 km) upstream from Jack Creek, about 9 mi (14 km) above mouth, and 13 mi (21 km) west of Birney, at site of continuous record station.	6.57	1978	10-02-78	a.5
					10-05-78	a.4
					10-16-78	a.4
					10-31-78	a.4
					11-02-78	a.3
Prairie Dog Creek 06307528	Tongue River	Lat 45°17'28", long 106°40'56", in SE1/4 NW1/4 NW1/4 sec.26, T.6 S., R.41 E., Rosebud County, on right bank, about 3.3 mi (5.3 km) above confluence with Tongue River, and 9 mi (15 km) west of Birney, at site of continuous-record station.	19.6	1978	10-02-78	a.3
					10-05-78	a.2
					10-16-78	a.25
					10-31-78	.25
					11-02-78	.25

See footnotes at end of table, p. 811.

Discharge measurements made at miscellaneous sites during water year 1979

Stream	Tributary to	Location	Drainage area (mi^2)	Measured previously (water years)	Measurements	
					Date	Discharge (ft^3/s)
		Tongue River basin--Continued				
Tongue River 451607106372801	Yellowstone River	Lat 45°16'07", long 106°37'28", in SE1/4 NE1/4 SE1/4 sec.31, T.6 S., R.42 E., Rosebud County, at mouth of Prairie Dog Creek, 7 mi (11 km) southwest of Birney, and at mile 176.1 (283.3 km).		1976, 1978	10-19-78	126
Hanging Woman Creek 06307540	Tongue River	Lat 45°00'07", long 106°25'29", in NE1/4 NW1/4 NE1/4 sec.2, T.10 S., R.43 E., Big Horn County, 0.5 mi (0.8 km) north of WY-MT Stateline, 18.5 mi (29.8 km) southwest of Otter, and 20 mi (32 km) east of Decker.	90.2		9-06-78 10-24-78	c.04 c.05
West Prong Hanging Woman Creek 450004106253001	Hanging Woman Creek	Lat 45°00'04", long 106°25'30", in NW 1/4 NE1/4 sec.2, T.10 S., R.43 E., Big Horn County, at confluence with Hanging Woman Creek, 0.1 mi (0.2 km) south of Forks Ranch, 19 mi (31 km) east of Decker, and 21 mi (34 km) southwest of Otter.		1978	10-24-78	0
Hanging Woman Creek 06307570	Tongue River	Lat 45°08'02", long 106°29'00", in SW1/4 SE1/4 SE1/4 sec.17, T.8 S., R.43 E., Big Horn County, on county road bridge, 0.6 mi (1.0 km) downstream from Horse Creek, 0.8 mi (1.3 km) upstream from Circle Bar Draw, 13.2 mi (21.2 km) southeast of Birney, at site of water-quality station.	321	1977-78	11-01-78 11-21-78 12-20-78 2-21-79 3-28-79 4-25-79 5-24-79 6-27-79 7-26-79 9-12-79	.44 <1.0 .62 .66 5.4 3.6 .9 .50 .53 .39
Hanging Woman Creek 451912106310501	Tongue River	Lat 45°19'12", long 106°31'05", in NW1/4 NW 1/4 sec.18, T.6 S., R.43 E., Rosebud County, at mouth of Hanging Woman Creek, 0.25 mi (0.40 km) south of Birney School, near county bridge crossing, at Birney.		1978	10-24-78	1.1
Tongue River 06307610	Yellowstone River	Lat 45°20'19", long 106°31'28", in SW1/4 SE1/4 SE1/4 sec.1, T.6 S., R.42 E., Rosebud County, at bridge on county road, 2.5 mi (4.0 km) downstream from Hanging Woman Creek, and 1.2 mi (1.9 km) northwest of Birney.	2,533	1974, 1977	11-03-77	160

See footnotes at end of table, p. 811.

Discharge measurements made at miscellaneous sites during water year 1979

Stream	Tributary to	Location	Drainage area (mi^2)	Measured previously (water years)	Measurements	
					Date	Discharge (ft^3/s)
		Tongue River basin--continued				
Tongue River 452240106294001	Yellowstone River	Lat 45°22'40", long 106°29'40", in NE1/4 NW1/4 sec.25, T.5 S., R.42 E., Rosebud County, just above Cook Creek, 3 mi (5 km) southeast of Birney Day School, and 4.5 mi (7.2 km) north of Birney.			10-19-78	136
Tongue River 06307616	Yellowstone River	Lat 45°24'43", long 106°27'25", in NE1/4 SW1/4 SW1/4 sec.8, T.5 S., R.43 E., Rosebud County, at county bridge at Birney Day School, 7 mi (11 km) northeast of Birney, at mile 151.5 (243.8 km).	2,621	1976	11-03-77	163
Tongue River 452708106242801	Yellowstone River	Lat 45°27'08", long 106°24'28", in NE1/4 NW1/4 sec.34, T.4 S., R.43 E., Rosebud County, 0.4 mi (0.6 km) upstream from Pawnee Creek, 8 mi (13 km) north of Birney.		1978	10-19-78	150
Tongue River 453019106195101	Yellowstone River	Lat 45°30'19", long 106°19'51", in NW1/4 SE1/4 NW1/4 sec.8, T.4 S, R.44 E., Rosebud County, 0.5 mi (0.8 km) upstream from King Creek, at mile 135.6 (218.2 km).		1976-77	11-03-77	170
Tongue River 453535106171101	Yellowstone River	Lat 45°35'35", long 106°17'11", in SE1/4 NE1/4 sec.10, T.3 S., R.44 E., Rosebud County, at U.S. Highway 212 bridge crossing, 1 mi (2 km) west of Ashland.		1978	10-19-78	156
Otter Creek 06307665	Tongue River	Lat 45°08'15", long 106°07'22", in NE1/4 NE1/4 SE1/4 sec.18, T.8 S., R.46 E., Powder River County, 0.2 mi (0.3 km) downstream from Pasture Creek, 5.5 mi (8.8 km) upstream from Bradshaw Creek, and 6.2 mi (10.0 km) southeast of Decker, at site of water-quality station.	40.9	1978	10-23-78 10-24-78 11-15-78 12-27-78 2-13-79 3-28-79 4-12-79 5-10-79 6-07-79 7-12-79 9-05-79	e.29 .35 .27 .07 .03 1.2 1.2 .90 .89 .10 .03
Otter Creek 451330106100201	Tongue River	Lat 45°13'30", long 106°10'02", in SW1/4 SE1/4 sec.13, T.7 S., R.45 E., Powder River County, near county bridge crossing, 0.35 mi (0.56 km) north of Bear Creek, 2 mi (3 km) northeast of Otter.		1978	10-24-78 10-26-78	.75 .18

See footnotes at end of table, p. 811.

Discharge measurements made at miscellaneous sites during water year 1979

Stream	Tributary to	Location	Drainage area (mi^2)	Measured previously (water years)	Measurements	
					Date	Discharge (ft^3/s)
		Tongue River basin--continued				
Otter Creek 451732106085001	Tongue River	Lat 45°17'32", long 106°08'50", in NE1/4 NW1/4 sec.30, T.6 S., R.46 E., Powder River County, at bridge 0.5 mi (0.8 km) downstream from Cow Creek, 6 mi (10 km) north of Otter.		1977-78	10-24-78	3.0
Otter Creek 06307717	Tongue River	Lat 45°23'29", long 106°08'37", in N1/2 sec.23, T.5 S., R.45 E., Powder River County, on county road bridge, 1.0 mi (1.6 km) upstream from Fifteenmile Creek, and 13.1 mi (21.1 km) northeast of Otter, at site of water-quality station.	451	1978	11-16-78	4.0
					12-27-78	3.7
					2-13-79	.97
					3-28-79	22
					4-12-79	8.8
					5-10-79	9.3
					6-07-79	7.5
					7-12-79	3.8
					9-05-79	2.1
Otter Creek 452559106085101	Tongue River	Lat 45°25'59", long 106°08'51", in SE1/4 NW1/4 sec.2, T.5 S., R.45 E., Powder River County, 0.2 mi (0.3 km) upstream from Tenmile Creek, 0.6 mi (1.0 km) east of Otter Creek road, at farm road crossing, about 10 mi (16 km) south of U.S. Highway 212, 12 mi (19 km) south of Ashland.		1978	10-24-78	4.0
Otter Creek 453117106110501	Tongue River	Lat 45°31'17", long 106°11'05", in NE1/4 NW1/4 sec.4, T.4 S., R.45 E., Powder River County, at county road bridge crossing, 0.3 mi (0.5 km) south of Willow Crossing, 0.8 mi (1.3 km) downstream of Threemile Creek, 7 mi (11 km) south of Ashland.		1978	10-24-78	3.1
Home Creek 06307735	Otter Creek	Lat 45°32'35", long 106°11'39", in SE1/4 NE1/4 SE1/4 sec.29, T.3 S., R.45 E., Powder River County, about 150 ft (46 m) west of Otter Creek road culvert, 1.0 mi (1.6 km) upstream from mouth, about 2 mi (3 km) south of Highway 212, 5.1 mi (8.2 km) southeast of Ashland, at site of water-quality station.	58.7	1976-78	10-24-78	c.08
					11-16-78	c.15
					12-26-78	.03
					2-14-79	.01
					3-28-79	c.28
					4-11-79	c.21
					5-10-79	c.14
					6-07-79	c.11
					7-11-79	c.03
					9-04-79	c.02
Otter Creek 453246106124101	Tongue River	Lat 45°32'46", long 106°12'41", in NW1/4 SW1/4 sec.29, T.3 S., R.45 E., Powder River County, at private road crossing, 0.4 mi (0.6 km) downstream from Home Creek, 5 mi (7 km) south of Ashland.		1978	10-24-78	3.8

See footnotes at end of table, p. 811.

Discharge measurements made at miscellaneous sites during water year 1979

Stream	Tributary to	Location	Drainage area (mi²)	Measured previously (water years)	Measurements	
					Date	Discharge (ft³/s)
		Tongue River basin--Continued				
Otter Creek 453323106125801	Tongue River	Lat 45°33'23", long 106°12'58", in SE1/4 SW1/4 sec.19, T.3S., R.45E., Powder River County, at private road crossing, 0.2 mi (0.3 km) downstream of East Fork Otter Creek, 3 mi (5 km) south of Ashland.		1978	10-24-78	3.9
Otter Creek 06307740	Tongue River	Lat 45°35'18", long 106°15'17", in NE1/4 NE1/4 SE1/4 sec.11, T.3S., R.44E., Rosebud county, on left bank 200 ft (61 m) downstream from bridge on U.S. Highway 212, 2.5 mi (4.0 km) south of Ashland, at site of continuous - record station.	707	b	10-24-78	4.2
Otter Creek 453601106161001	Tongue River	Lat 45°36'01", long 106°16'10", in SW1/4 SW1/4 sec.2, T.3S., R.44E., Rosebud County, near county road crossing, 0.2 mi (0.3 km) above confluence with Tongue River, 0.2 mi (0.3 km) west of Ashland.		1978	11-03-77	C .14
Tongue River 454307106173501	Yellowstone River	Lat 45°43'07", long 106°17'35", in SE1/4 NW1/4 SW1/4 sec.27, T.1S., R.44E., Rosebud County, 0.3 mi (0.5 km) upstream from Lay Creek, 10 mi (16 km) north of Ashland, at mile 103.8 (167.0 km).		1976, 1978	10-19-78	172
Beaver Creek 06307810	Tongue River	Lat 45°47'52", long 106°14'17", in NW1/4 SE1/4 NE1/4 sec.34, T.1N., R.44E., Rosebud County, at county road bridge 0.8 mi (1.3 km) upstream from mouth, and 14.7 mi (23.7 km) north of Ashland, at site of former water-quality station.	92.3	1975-76	11-04-77	0
Tongue River 455023106131201	Yellowstone River	Lat 45°50'23", long 106°13'12", in NE1/4 sec.14, T.1N., R.44E., Rosebud County, at Brandenberg Bridge, 42 mi (68 km) southwest of Miles City.		1941, 1978	10-19-78	186
Tongue River 06307830	Yellowstone River	Lat 45°52'18", long 106°11'17", in NE1/4 SW1/4 NW1/4 sec.6, T.1N., R.45E., Custer County, on left bank, 3.1 mi (5.0 km) downstream from Goodale Creek, 6.5 mi (10.5 km) downstream from Brandenberg Bridge, and 21 mi (34 km) north of Ashland, at site of continuous record station.	4,062	b	10-19-78	183

See footnotes at end of table, p. 811.

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Discharge measurements made at miscellaneous sites during water year 1979

Stream	Tributary to	Location	Drainage area (mi^2)	Measured previously (water years)	Measurements	
					Date	Discharge (ft^3/s)
		Tongue River basin--Continued				
Tongue River 455844106031901	Yellowstone River	Lat 45°58'44", long 106°03'19", in SW1/4 SW1/4 SE1/4 sec.30, T.3N., R.46E., Custer County, at Moon Creek Road bridge, 11.4 mi (18.3 km) northeast of Brandenberg, at mile 64.5 (103.8 km).		1976, 1978	10-19-78	194
Tongue River 460802105483301	Yellowstone River	Lat 46°08'02", long 105°48'33", in SW1/4 SE1/4 NW1/4 sec.6, T.4N., R.48E., Custer County, 1 mi (2 km) downstream from Ash Creek, 15.6 mi (25.1 km) northwest of Volborg, at mile 36.3 (58.4 km).		1976-78	10-19-78	208
Pumpkin Creek 452423105503001	Tongue River	Lat 45°24'23", long 105°50'30", in SW1/4 SE1/4 sec.7, T.5S., R.48E., Powder River County, 0.3 mi (0.5 km) downstream of Dry Creek, 0.6 mi (1.0 km) south of Sonnette.		1978	10-24-78	.24
Pumpkin Creek 06308080	Tongue River	Lat 45°32'20", long 105°49'03", in NE1/4 SE1/4 SE1/4 sec.29, T.3S., R.48E., Powder River County, at culverts on State Highway 212, 5.9 mi (9.5 km) upstream from Winter Gulch, 9.1 mi (14.6 km) north of Sonnette, at site of former water-quality station.		1976-78	10-24-78	0
Pumpkin Creek 06308160	Tongue River	Lat 45°42'40", long 105°43'50", in NW1/4 sec.31, T.1S., R.49E., Powder River County, at bridge on county road, 0.9 mi (1.4 km) northeast of Loesch, 9 mi (15 km) upstream from Little Pumpkin Creek, at site of former water-quality station.	102	1976-78	10-12-78 10-24-78 12-27-78 03-17-79 04-11-79 05-17-79 06-04-79 07-09-79 07-30-79 09-05-79	0 c.02 a.05 2.8 4.9 .07 1.9 .02 .01 0
Little Pumpkin Creek 06308170	Pumpkin Creek	Lat 45°46'50", long 105°43'43", in N1/2 sec.6, T.1S., R.49E., Powder River County, on county bridge, 0.9 mi (1.4 km) upstream from mouth, 5.0 mi (8.0 km) southwest of Volborg, at site of former water-quality station.	101	1976-78	10-24-78	0

See footnotes at end of table, p. 811.

Discharge measurements made at miscellaneous sites during water year 1979

Stream	Tributary to	Location	Drainage area (mi^2)	Measured previously (water years)	Measurements Date	Measurements Discharge (ft^3/s)
		Tongue River basin--Continued				
Pumpkin Creek 454739105430801	Tongue River	Lat 45°47'39", long 105°43'08", in NW1/4 SE1/4 sec.35, T.1N., R.48E., Custer County, at bridge, 0.5 mi (0.8 km) north of Little Pumpkin Creek, 3.9 mi (6.3 km) southwest of Volborg.		1978	10-24-78	0
Pumpkin Creek 460317105334201	Tongue River	Lat 46°03'17", long 105°33'42", in NW1/4 SW1/4 sec.31, T.4N., R.50E., Custer County, 0.4 mi (0.6 km) upstream of Deer Creek, 29 mi (47 km) southeast of Miles City.		1978	10-24-78	0
Pumpkin Creek 06308400	Tongue River	Lat 46°13'42", long 105°41'24", in SE1/4 NW1/4 SW1/4 sec.35, T.6N., R.48E., Custer County, on right bank, 30 ft (9 m) upstream from bridge on U.S. Highway 312, 7.5 mi (12.1 km) upstream from mouth, and 16 mi (26 km) southeast of Miles City, at site of continuous-record gaging station.	697	1949, 1952[b]	10-24-78	.27
Tongue River 461538105455201	Yellowstone River	Lat 46°15'38", long 105°45'52", in SE1/4 NW1/4 SE1/4 sec.19, T.6N., R.48E., Custer County, at Woodard Ranch, 0.7 mi (1.1 km) downstream from Tongue - Yellowstone diversion dam, 12 mi (19 km) south of Miles City, at mile 21.4 (34.4 km).		1976, 1978	10-19-78	215
Tongue River 462413105512801	Yellowstone River	Lat 46°24'13", long 105°51'28", in NW1/4 SW1/4 sec.33, T.8N., R.47E., Custer County, near U.S. Highway 12 bridge, at Riverside Park in Miles City.		1978	10-19-78	232
		Yellowstone River basin				
Muster Creek 06309079	Yellowstone River	Lat 46°37'05", long 105°45'08", in NW1/4 SW1/4 SE1/4 sec.13, T.10N., R.47E., Custer County, on right bank, at bridge on Caprock Road, 5.8 mi (9.3 km) northwest of Kinsey, at site of water-quality station.	28.5	1977-78	03-06-79 03-15-79 03-24-79 04-03-79 05-03-79 06-12-79 07-03-79 07-24-79 07-26-79 08-07-79	0 32 16 1.0 .19 0 0 0 .72 0

See footnotes at end of table, p. 811.

Discharge measurements made at miscellaneous sites during water year 1979

Stream	Tributary to	Location	Drainage area (mi^2)	Measured previously (water years)	Measurements	
					Date	Discharge (ft^3/s)
		Yellowstone River basin--Continued				
Custer Creek 06309145	Yellowstone River	Lat 46°42'03", long 105°29'14", in NE1/4 NW1/4 NW1/4 sec.19, T.11 N., R.50 E., Prairie County, on right bank, at prairie trail ford, just upstream from railroad bridge, 12.0 mi (19.3 km) northeast of Kinsey, about 0.8 river mile (1.3 km) above mouth, at site of water-quality station.	151	1977-78	03-12-79 03-15-79 04-03-79 05-31-79 06-12-79 07-03-79 07-24-79 07-26-79 08-07-79	154 46 11 .22 0 0 0 7.6 0
		Powder River basin				
Powder River 06324500	Yellowstone River	Lat 45°04'10", long 105°52'00", in NW1/4 sec.8, T.9 S., R.48 E., Powder River County, on left bank, 500 ft (152 m) downstream from discontinued post office at Moorhead, 6.2 mi (10.0 km) upstream from Buffalo Creek, and at mile 184.8 (297.0 km), at site of continuous-record station.	8,088	1929-72‡, 1974 b	10-17-78	293
Powder River 451931105341901	Yellowstone River	Lat 45°19'31", long 105°34'19", in NE1/4 SE1/4 sec.10, T.6 S., R.50 E., Powder River County, about 0.1 mi (0.2 km) east of county road, 1.4 mi (2.3 km) upstream of Cache Creek, 10 mi (16 km) southwest of Broadus.		1978	10-18-78 10-18-79	308 303
Powder River 452211105272701	Yellowstone River	Lat 45°22'11", long 105°27'27", in SW1/4 SE1/4 sec.20 T.5 S., R.51 E., Powder River County, 0.1 mi (0.2 km) upstream of Third Creek, 0.1 mi (0.2 km) west of county road, 5 mi (8 km) south of Broadus.		1978	10-17-78	275
Powder River 06324710	Yellowstone River	Lat 45°25'37", long 105°24'05", in NW1/4 SE1/4 sec.3 T.5 S., R.51 E., Powder River County, on right bank 150 ft (46 km) upstream from bridge on U.S. Highway 212, 0.4 mi (0.6 km) downstream from Doyle Creek, 1 mi (2 km) south of Broadus, 7 mi (11 km) upstream of Little Powder River, at site of continuous-record station.	8,748	b	10-17-78	287

See footnotes at end of table, p. 811.

Discharge measurements made at miscellaneous sites during water year 1979

Stream	Tributary to	Location	Drainage area (mi^2)	Measured previously (water years)	Measurements	
					Date	Discharge (ft^3/s)
		Powder River basin--Continued				
Little Powder River 06325000	Powder River	Lat 45°06'17", long 105°19'49", in SW1/4 SE1/4 sec.27, T.8 S., R.52 E., Powder River County, at highway bridge, 0.5 mi (0.8 km) downstream from Ranch Creek, and 0.8 mi (1.3 km) northeast of Biddle.	1,541	1938-43‡, 1978; b	10-21-78	4.7
Little Powder River 451147105184501	Powder River	Lat 45°11'47", long 105°18'45", in SW1/4 NE1/4 sec.26, T.7 S., R.52 E., Powder River County, at county bridge, 0.2 mi (0.3 km) downstream of Belle Creek, 0.9 mi (1.4 km) east of State Highway 59, and 7 mi (11 km) north of Biddle.		1978	10-21-78	4.5
Little Powder River 452225105180501	Powder River	Lat 45°22'25", long 105°18'05", in SE1/4 NE1/4 sec.28, T.5 S., R.52 E., Powder River County, at U.S. Highway 212 bridge crossing, 0.2 mi (0.3 km) upstream of East Fork Little Powder River, and 6 mi (10 km) southeast of Broadus.		1978	10-21-78	3.6
Little Powder River 452739105193901	Powder River	Lat 45°27'39", long 105°19'39", in SW1/4 NE1/4 sec.29, T.4 S., R.52 E., Powder River County, at county bridge, 0.4 mi (0.6 km) upstream from confluence with Powder River, 4 mi (6 km) northeast of Broadus.		1978	10-21-78	9.0
Powder River 453758105150701	Yellowstone River	Lat 45°37'58", long 105°15'07", in NE1/4 SW1/4 sec.25, T.2 S., R.52 E., Powder River County, just below irrigation diversion canal, 11 mi (18 km) southwest of Powderville.		1978	10-18-78	290
Powder River 454508105051501	Yellowstone River	Lat 45°45'08", long 105°05'15", in SW1/4 SE1/4 NW1/4 sec.17, T.1 S., R.54 E., Powder River County, at county bridge, 1 mi (2 km) east of Powderville.		1976, 1978	10-18-78	284

See footnotes at end of table, p. 811.

Discharge measurements made at miscellaneous sites during water year 1979

Stream	Tributary to	Location	Drainage area (mi^2)	Measured previously (water years)	Measurements	
					Date	Discharge (ft^3/s)
		Powder River basin--Continued				
Powder River 454911105023501	Yellowstone River	Lat 45°49'11", long 105°02'35", in SE1/4 NW1/4 sec.9, T.1 N., R.54 E., Custer County, 0.7 mi (1.1 km) east of county road, 8 mi (13 km) northeast of Powderville, 23 mi (37 km) west of Ekalaka.		1978	10-18-78	297
Powder River 460808105093201	Yellowstone River	Lat 46°08'08", long 105°09'32", in NE1/4 NW 1/4 sec.5, T.4 N., R.53 E., Custer County, on Balsam Ranch, 0.3 mi (0.5 km) east of county road, 0.6 mi (1.0 km) upstream of Cut Coulee, 9 mi (14 km) southeast of Mizpah.		1978	10-18-78	292
Powder River 06326000	Yellowstone River	Lat 46°14'43", long 105°15'52", in NW1/4 SE1/4 sec.30, T.6 N., R.52 E., Custer County, at county bridge about 1.5 mi (2.4 km) upstream of Mizpah Creek, 0.3 mi (0.5 km) east of Mizpah, at site of former gaging station.	12,132	1928-33‡, 1978	10-18-78	300
Mizpah Creek 06326050	Powder River	Lat 45°32'30", long 105°31'40", in SW1/4 sec.26, T.3 S., R.50 E., Powder River County, at bridge on U.S. Highway 212, at Olive, about 1.0 mi (1.6 km) downstream from YT Creek, at site of water-quality station.	129	1976-78	10-18-78	.15
					11-15-78	.26
					12-27-78	.21
					03-01-79	.15
					03-28-79	1.5
					04-11-79	a4.0
					07-11-79	.01
					05-08-79	.64
Mizpah Creek 454609105241701	Powder River	Lat 45°46'09", long 105°24'17", in NW1/4 NW1/4 sec.11, T.1 S., R.51 E., Powder River County, at county bridge just above confluence with Cross Creek, 14 mi (23 km) northeast of Coalwood , 15 mi (24 km) northwest of Powderville.		1978	10-18-78	c .14
Mizpah Creek 06326200	Powder River	Lat 45°56'00", long 105°23'40" in SW1/4 sec.9 T.2 N., R.51 E., Custer County, on bridge on Spring Creek, 15.1 mi (24.3 km) northeast of Volborg, at site of water-quality station.	510	1976-78	10-18-79	c .02

See footnotes at end of table, p. 811.

Discharge measurements made at miscellaneous sites during water year 1979

Stream	Tributary to	Location	Drainage area (mi^2)	Measured previously (water years)	Measurements Date	Measurements Discharge (ft^3/s)
		Powder River basin--Continued				
Mizpah Creek 06326300	Powder River	Lat 46°15'39", long 105°17'34", in NW1/4 NE1/4 SW1/4 sec.24, T.6 N., R.51 E., Custer County, on left bank 10 ft (3 m) upstream from county bridge, 1.0 mi (1.6 km) upstream from mouth, and 1.6 mi (2.6 km) northwest of Mizpah, at site of continuous-record station.	797	b	10-18-79	c .23
Powder River 461656105164201	Yellowstone River	Lat 46°16'56", long 105°16'42" in NE1/4 NE1/4 sec.13, T.6 N., R.51 E., Custer County, at county road 0.9 mi (1.4 km) downstream of Mizpah Creek, 1.6 mi (2.6 km) north of Mizpah, 28 mi (45 km) east of Miles City.		1978	10-18-79	302
Powder River 06326500	Yellowstone River	Lat 46°26'56", long 105°18'44" in NW1/4 SW1/4 sec.14, T.8 N., R.51 E., Custer County, on left bank 1.5 mi (2.4 km) downstream from bridge on U.S. Highway 12, at present site of Locate (5 mi (8 km) west of former site of Locate), 1.5 mi (2.4 km) upstream from Locate Creek, and 25 mi (40 km) east of Miles City, at site of continuous-record station.		b	10-18-78	306
Powder River 06326520	Yellowstone River	Lat 46°44'15", long 105°25'45" in NE1/4 NE1/4 SE1/4 sec.4, T.11 N., R.50 E., Custer County, at railroad bridge just upstream from confluence with Yellowstone River, 6 mi (10 km) southwest of Terry.		1977	10-18-78	297
Cherry Creek 06326555	Yellowstone River	Lat 46°51'00", long 105°19'27" on sec. line. 25/30, T.13 N., on Rangeline, R.50/51 E., Prairie County, at county road bridge, 4.0 mi (6.4 km) northwest of Terry, at site of water-quality station.		1978	4-12-79 5-10-79 6-14-79 8-16-79	29 6.5 .14 0

See footnotes at end of table, p. 811.

Discharge measurements made at miscellaneous sites during water year 1979

Stream	Tributary to	Location	Drainage area (mi^2)	Measured previously (water years)	Measurements	
					Date	Discharge (ft^3/s)
		Powder River basin--Continued				
Clear Creek 06326953	Yellowstone River	Lat 47°08'05", long 104°56'31", in SW1/4 SW1/4 NW1/4 sec.6, T.14 N., R.54 E., Dawson County, on left bank at county road crossing, 6.5 mi (10.5 km) northwest of Hoyt, at site of water-quality station.	38.1	1977-78	2-22-79	0.04
					3-14-79	36
					3-18-79	26
					4-05-79	14
					5-11-79	11
					6-22-79	1.2
					7-05-79	a .05
					7-18-79	0
					8-08-79	0
Upper Sevenmile Creek 06326995	Yellowstone River	Lat 47°08'17", long 104°56'40", in NW1/4 NE1/4 NE1/4 sec.24, T.16 N., R.53 E., Dawson County, at bridge on gravel road, 0.6 mi (1.0 km) south of State Highway 200, 11.5 mi (18.5 km) west-northwest of Glendive, at site of water-quality Station.	137	1977-78	10-03-79	.45
					2-08-79	0
					3-13-79	14
					3-24-79	85
					4-06-79	8.7
					5-10-79	13
					6-18-79	a .08
					6-22-79	.47
					7-05-79	0
					7-18-79	0
					8-08-79	0
					9-13-79	0
Glendive Creek 06327850	Yellowstone River	Lat 47°07'16", long 104°39'51", in SE1/4 NW1/4 NW1/4 sec.29, T.16 N., R.56 E., Dawson County, on frontage road bridge, 2.4 mi (3.9 km) upstream from mouth, and 1.2 mi (1.9 km) east of Glendive.	300		10-20-77	1.4
					11-28-77	1.7
					12-20-77	0
					1-12-78	0
					2-14-78	0
					3-20-78	1,140
					4-06-78	100
					5-22-78	a .20
					6-06-78	6.4
					7-13-78	1.3
					8-09-78	a .25
					12-15-78	0
					3-29-79	26
					4-12-79	124
					5-18-79	1.7
					6-15-79	0
					7-12-79	11
					8-16-79	a .03
					9-19-79	a .10

See footnotes at end of table, p. 811.

Discharge measurements made at miscellaneous sites during water year 1979

Powder River basin--Continued

Stream	Tributary to	Location	Drainage area (mi^2)	Measured previously (water years)	Measurements	
					Date	Discharge (ft^3/s)
Deer Creek 06328000	Yellowstone River	Lat 47°09'44", long 104°42'08", in SW1/4 NE1/4 NW1/4 sec.12, T.16 N., R.55 E., Dawson County, on right bank at State Highway 16 bridge, 4.0 mi (6.4 km) north of Glendive, and 3.8 mi (6.7 km) northeast of Highway I-94, at site of water-quality station.	198	1921-22‡, 1977-78	3-14-79	24
					3-22-79	331
					3-22-79	343
					4-05-79	33
					5-10-79	17
					6-18-79	a 1.0
					6-21-79	.48
					7-05-79	0
					7-18-79	0
					8-08-79	.04
Cottonwood Creek 06329000	Yellowstone River	Lat 47°14'50", long 104°18'15", in E1/2 sec.14, T.17 N., R.58 E., Wilbaux County, at road crossing, 16.2 mi (26.1 km), and 26 mi (42 km) north of Wilbaux, at site of water-quality station.	85.3	1978	12-15-78	a .10
					3-23-79	27
					4-12-79	21
					5-17-79	.96
					6-14-79	.09
					7-11-79	.07
					8-15-79	a .01
					9-19-79	0

Kootenai River basin

Stream	Tributary to	Location	Drainage area (mi^2)	Measured previously (water years)	Date	Discharge (ft^3/s)
Murray Creek 485708115083001	Lake Koocanusa	Lat 48°57'08", long 115°08'30", in NE1/4 SE1/4 SW1/4 sec.20, T.37 N R.27 W., Lincoln County, at Lake Koocanusa flow line, about 1.0 mi (1.6 km) west of intersection of Carpenter and Sophie Lake roads, 3.6 mi (5.8 km) northwest of Rexford.		1966-78	10-24-78	13
					3-20-79	12

‡ Operated as a continuous-record gaging station.

a Estimated

b Current surface-water station. Measured to determine basin low-flow characteristics.

c Parshall Flume measurement.

Samples are collected at sites other than gaging stations and partial-record stations to give better areal coverage in a river basin. Such sites are referred to as miscellaneous sites.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

MILK RIVER BASIN

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)
06170000 - MCEACHERN CREEK AT INTERNATIONAL BOUNDARY (LAT 48 59 30 LONG 106 55 40)									
APR									
10...	1500	62	60	131	7.2	4.0	.5	31	4
26...	1300	96	2	366	6.8	4.0	3.5	72	37
MAY									
14...	1245	15	1	772	7.5	17.0	12.0	190	57

DATE	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)
06170000 - MCEACHERN CREEK AT INTERNATIONAL BOUNDARY (LAT 48 59 30 LONG 106 55 40)									
APR									
10...	7.1	3.1	14	1.1	6.1	27	29	2.2	.1
26...	16	7.7	41	2.1	5.8	35	13	4.5	.1
MAY									
14...	47	17	110	3.5	6.3	130	260	4.3	.2

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
06170000 - MCEACHERN CREEK AT INTERNATIONAL BOUNDARY (LAT 48 59 30 LONG 106 55 40)								
APR								
10...	4.8	84	.11	14.2	.10	.28	100	440
26...	7.6	135	.18	34.8	3.9	.09	60	570
MAY								
14...	8.8	532	.72	21.5	.00	.05	100	260

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
06170000 - MCEACHERN CREEK AT INTERNATIONAL BOUNDARY (LAT 48 59 30 LONG 106 55 40)												
APR												
10...	1500	2	0	0	0	20	0	50	.3	0	0	20
26...	1300	2	0	0	0	0	0	30	.1	0	0	20
MAY												
14...	1245	2	0	0	0	0	0	50	.0	0	0	30

Samples are collected at sites other than gaging stations and partial-record stations to give better areal coverage in a river basin. Such sites are referred to as miscellaneous sites.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

YELLOWSTONE RIVER BASIN

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE (DEG C) (00010)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)
454947107064401 - SARPY CREEK ABOVE SPRING CREEK (LAT 45 49 47 LONG 107 06 44.01)											
OCT , 1978 26...	0800	.21	3440	8.0	1.0	3.5	1600	970	140	310	320
06294940 - SARPY CREEK NEAR HYSHAM, MT. (LAT 46 14 12 LONG 107 08 03)											
OCT , 1978 26...	0900	2.4	2630	8.4	7.0	6.0	630	93	95	95	420
460902106474301 - ARMELLS CREEK ABOVE COTTONWOOD CREEK (LAT 46 09 02 LONG 106 47 43.01)											
OCT , 1978 26...	1245	1.8	5900	8.1	16.0	7.0	1800	1300	170	330	940
06294995 - ARMELLS CREEK NEAR FORSYTH, MT. (LAT 46 14 59 LONG 106 48 22)											
OCT , 1978 26...	1230	2.4	5250	8.4	6.5	8.0	1000	450	110	180	1100
06295110 - ROSEBUD CREEK AT KIRBY MT (LAT 45 19 59 LONG 106 59 10)											
OCT , 1978 25...	1230	19	950	8.1	8.0	6.0	530	110	83	79	30
454044106415601 - ROSEBUD CREEK WEST OF JIMTOWN, MT (LAT 45 40 44 LONG 106 41 56.01)											
OCT , 1978 25...	0830	56	1200	8.3	1.5	5.5	600	170	77	100	73
460557106264601 - ROSEBUD CREEK ABOVE COTTONWOOD CREEK (LAT 46 05 57 LONG 106 26 46.01)											
OCT , 1978 25...	0845	49	1400	8.5	2.0	7.0	640	220	73	110	92
06296003 - ROSEBUD CREEK AT MOUTH, NEAR ROSEBUD, MT. (LAT 46 15 53 LONG 106 28 30)											
OCT , 1978 25...	1130	50	1460	8.6	8.5	7.5	640	220	73	110	110
06307500 - TONGUE RIVER AT TONGUE R DAM, NEAR DECKER, MT. (LAT 45 08 29 LONG 106 46 15)											
OCT , 1978 19...	1030	124	780	8.6	6.5	9.5	330	110	63	42	36
452708106242801 - TONGUE RIVER ABOVE PAWNEE CREEK (LAT 45 27 08 LONG 106 24 28.01)											
OCT , 1978 19...	1200	150	868	8.0	16.0	9.0	390	150	68	53	59

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SITES

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

YELLOWSTONE RIVER BASIN

DATE	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	BICAR- BONATE (MG/L AS HCO3) (00440)	CAR- BONATE (MG/L AS CO3) (00445)	ALKA- LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS- SOLVED (MG/L AS CO2) (00405)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)
454947107064401 - SARPY CREEK ABOVE SPRING CREEK (LAT 45 49 47 LONG 107 06 44.01)											
OCT , 1978 26...	3.5	18	800	0	650	13	1500	21	.4	10	2980
06294940 - SARPY CREEK NEAR HYSHAM, MT. (LAT 46 14 12 LONG 107 08 03)											
OCT , 1978 26...	7.3	8.7	640	7	540	4.2	900	34	.4	9.3	1980
460902106474301 - ARMELLS CREEK ABOVE COTTONWOOD CREEK (LAT 46 09 02 LONG 106 47 43.01)											
OCT , 1978 26...	9.7	17	670	0	550	8.5	3000	48	.3	8.1	5510
06294995 - ARMELLS CREEK NEAR FORSYTH, MT. (LAT 46 14 59 LONG 106 48 22)											
OCT , 1978 26...	15	13	660	5	550	4.3	2700	33	.4	6.7	4400
06295110 - ROSEBUD CREEK AT KIRBY MT (LAT 45 19 59 LONG 106 59 10)											
OCT , 1978 25...	.6	7.3	510	0	410	6.5	170	4.2	.6	17	624
454044106415601 - ROSEBUD CREEK WEST OF JIMTOWN, MT (LAT 45 40 44 LONG 106 41 56.01)											
OCT , 1978 25...	1.3	9.6	530	0	430	4.3	310	5.8	.6	16	840
460557106264601 - ROSEBUD CREEK ABOVE COTTONWOOD CREEK (LAT 46 05 57 LONG 106 26 46.01)											
OCT , 1978 25...	1.6	11	480	17	420	2.5	430	6.7	.6	15	984
06296003 - ROSEBUD CREEK AT MOUTH, NEAR ROSEBUD, MT. (LAT 46 15 53 LONG 106 28 30)											
OCT , 1978 25...	1.9	11	460	24	400	2.0	450	7.2	.6	15	1010
06307500 - TONGUE RIVER AT TONGUE R DAM, NEAR DECKER, MT. (LAT 45 08 29 LONG 106 46 15)											
OCT , 1978 19...	.9	3.6	250	10	220	1.1	180	4.0	.3	5.2	468
452708106242801 - TONGUE RIVER ABOVE PAWNEE CREEK (LAT 45 27 08 LONG 106 24 28.01)											
OCT , 1978 19...	1.3	4.9	290	0	230	4.6	250	4.7	.3	6.0	588

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SITES

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

YELLOWSTONE RIVER BASIN

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
454947107064401 - SARPY CREEK ABOVE SPRING CREEK (LAT 45 49 47 LONG 107 06 44.01)											
OCT , 1978											
26...	2720	4.05	1.69	.02	.01	1.1	1.1	.060	.040	1300	40
06294940 - SARPY CREEK NEAR HYSHAM, MT. (LAT 46 14 12 LONG 107 08 03)											
OCT , 1978											
26...	1890	2.64	12.6	.00	.00	.60	.60	.050	.010	300	50
460902106474301 - ARMELLS CREEK ABOVE COTTONWOOD CREEK (LAT 46 09 02 LONG 106 47 43.01)											
OCT , 1978											
26...	4840	7.49	26.8	.01	.01	.77	.78	.020	.010	700	30
06294995 - ARMELLS CREEK NEAR FORSYTH, MT. (LAT 46 14 59 LONG 106 48 22)											
OCT , 1978											
26...	4470	5.98	28.5	.01	.01	.99	1.0	.040	.000	600	30
06295110 - ROSEBUD CREEK AT KIRBY MT (LAT 45 19 59 LONG 106 59 10)											
OCT , 1978											
25...	642	.85	32.0	.07	.01	.88	.89	.020	.010	120	20
454044106415601 - ROSEBUD CREEK WEST OF JIMTOWN, MT (LAT 45 40 44 LONG 106 41 56.01)											
OCT , 1978											
25...	853	1.14	127	.01	.00	.58	.58	.040	.010	180	20
460557106264601 - ROSEBUD CREEK ABOVE COTTONWOOD CREEK (LAT 46 05 57 LONG 106 26 46.01)											
OCT , 1978											
25...	992	1.34	130	.01	.01	.67	.68	.040	.010	200	10
06296003 - ROSEBUD CREEK AT MOUTH, NEAR ROSEBUD, MT. (LAT 46 15 53 LONG 106 26 30)											
OCT , 1978											
25...	1030	1.37	136	.01	.01	.46	.47	.040	.000	220	10
06307500 - TONGUE RIVER AT TONGUE R DAM, NEAR DECKER, MT. (LAT 45 08 29 LONG 106 46 15)											
OCT , 1978											
19...	467	.64	157	.02	.04	.55	.59	.020	.000	110	<10
452708106242801 - TONGUE RIVER ABOVE PAWNEE CREEK (LAT 45 27 08 LONG 106 24 28.01)											
OCT , 1978											
19...	589	.80	238	.01	.01	--	--	.000	.000	130	10

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SITES

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

YELLOWSTONE RIVER BASIN

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)
451732106085001 - OTTER CREEK BELOW COW CREEK (LAT 45 17 32 LONG 106 08 50.01)											
OCT , 1978 24...	1120	3.1	2980	8.4	14.0	7.0	900	420	130	140	340
452558106085101 - OTTER CREEK ABOVE TENMILE CREEK (LAT 45 25 58 LONG 106 08 51.01)											
OCT , 1978 24...	0845	4.0	3000	8.3	9.5	6.5	1100	590	110	200	380
453246106124101 - OTTER CREEK BELOW HOME CREEK (LAT 45 32 46 LONG 106 12 41.01)											
OCT , 1978 24...	1100	3.8	3250	8.1	9.5	6.0	1100	590	90	210	440
455023106131201 - TONGUE RIVER AT BRANDENBERG BRIDGE (LAT 45 50 23 LONG 106 13 12.01)											
OCT , 1978 19...	0855	186	1060	8.5	8.5	9.0	410	130	71	56	77
455844106031901 - TONGUE RIVER AT MOON CREEK BRIDGE (LAT 45 58 44 LONG 106 03 19.01)											
OCT , 1978 19...	1250	194	1080	8.5	22.5	12.0	450	180	80	60	83
452423105503001 - PUMPKIN CREEK BELOW DRY CREEK (LAT 45 24 23 LONG 105 50 30.01)											
OCT , 1978 24...	0830	.24	1960	8.0	17.0	5.0	870	490	150	120	140
06308400 - PUMPKIN CREEK NEAR MILES CITY MT (LAT 46 13 42 LONG 105 41 24)											
OCT , 1978 24...	0730	.27	1880	8.4	6.0	6.0	220	0	47	26	330
462413105512801 - TONGUE RIVER IN MILES CITY, MT (LAT 46 24 13 LONG 105 51 28.01)											
OCT , 1978 19...	0900	232	1080	8.6	7.5	8.5	430	150	77	58	90
06324500 - POWDER RIVER AT MOORHEAD, MT. (LAT 45 04 04 LONG 105 52 10)											
OCT , 1978 17...	1535	293	2060	8.4	11.0	9.5	550	300	120	61	260
06324710 - POWDER RIVER AT BROADUS MT (LAT 45 25 40 LONG 105 24 15)											
OCT , 1978 17...	1530	287	2150	8.3	14.0	10.0	600	350	130	66	270

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

YELLOWSTONE RIVER BASIN

DATE	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)
451732106085001 - OTTER CREEK BELOW COW CREEK (LAT 45 17 32 LONG 106 08 50.01)											
OCT , 1978											
24...	4.9	19	570	6	490	3.7	1100	15	.6	15	2360
452558106085101 - OTTER CREEK ABOVE TENMILE CREEK (LAT 45 25 58 LONG 106 08 51.01)											
OCT , 1978											
24...	5.0	20	620	0	510	5.0	1300	15	.6	7.2	2490
453246106124101 - OTTER CREEK BELOW HOME CREEK (LAT 45 32 46 LONG 106 12 41.01)											
OCT , 1978											
24...	5.8	22	620	0	510	7.9	1400	16	.6	2.9	2640
455023106131201 - TONGUE RIVER AT BRANDENBERG BRIDGE (LAT 45 50 23 LONG 106 13 12.01)											
OCT , 1978											
19...	1.7	6.0	320	8	270	1.7	320	6.0	.3	8.0	724
455844106031901 - TONGUE RIVER AT MOON CREEK BRIDGE (LAT 45 58 44 LONG 106 03 19.01)											
OCT , 1978											
19...	1.7	6.0	320	7	270	1.7	320	6.0	.3	9.3	711
452423105503001 - PUMPKIN CREEK BELOW DRY CREEK (LAT 45 24 23 LONG 105 50 30.01)											
OCT , 1978											
24...	2.1	12	460	0	380	7.4	780	5.9	.7	15	1560
06308400 - PUMPKIN CREEK NEAR MILES CITY MT (LAT 46 13 42 LONG 105 41 24)											
OCT , 1978											
24...	9.6	9.3	380	7	320	2.5	600	5.8	.4	6.2	1290
462413105512801 - TONGUE RIVER IN MILES CITY, MT (LAT 46 24 13 LONG 105 51 28.01)											
OCT , 1978											
19...	1.9	5.8	310	14	280	1.4	330	6.5	.3	9.5	721
06324500 - POWDER RIVER AT MOORHEAD, MT. (LAT 45 04 04 LONG 105 52 10)											
OCT , 1978											
17...	4.8	6.1	290	7	250	1.9	650	170	.6	6.4	1440
06324710 - POWDER RIVER AT BROADUS MT (LAT 45 25 40 LONG 105 24 15)											
OCT , 1978											
17...	4.8	4.0	300	0	250	2.4	670	160	.6	6.9	1540

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SITES

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

YELLOWSTONE RIVER BASIN

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
451732106085001 - OTTER CREEK BELOW COW CREEK (LAT 45 17 32 LONG 106 08 50.01)											
OCT , 1978 24...	2050	3.21	19.8	.01	.02	.39	.41	.030	.020	340	30
452558106085101 - OTTER CREEK ABOVE TENMILE CREEK (LAT 45 25 58 LONG 106 08 51.01)											
OCT , 1978 24...	2340	3.39	26.9	.01	.01	.47	.48	.020	.010	390	30
453246106124101 - OTTER CREEK BELOW HOME CREEK (LAT 45 32 46 LONG 106 12 41.01)											
OCT , 1978 24...	2490	3.59	27.1	.01	.01	.59	.60	.030	.010	460	20
455023106131201 - TONGUE RIVER AT BRANDENBERG BRIDGE (LAT 45 50 23 LONG 106 13 12.01)											
OCT , 1978 19...	710	.98	364	.02	.01	.38	.39	.010	.000	160	20
455844106031901 - TONGUE RIVER AT MOON CREEK BRIDGE (LAT 45 58 44 LONG 106 03 19.01)											
OCT , 1978 19...	729	.97	372	.02	.02	.54	.56	.000	.000	150	<10
452423105503001 - PUMPKIN CREEK BELOW DRY CREEK (LAT 45 24 23 LONG 105 50 30.01)											
OCT , 1978 24...	1450	2.12	1.01	.05	.01	.46	.47	.030	.010	260	20
06308400 - PUMPKIN CREEK NEAR MILES CITY MT (LAT 46 13 42 LONG 105 41 24)											
OCT , 1978 24...	1220	1.75	.94	.00	.01	1.3	1.3	.050	.010	270	30
462413105512801 - TONGUE RIVER IN MILES CITY, MT (LAT 46 24 13 LONG 105 51 28.01)											
OCT , 1978 19...	744	.98	452	.04	.01	.43	.44	.000	.010	160	<10
06324500 - POWDER RIVER AT MOORHEAD, MT. (LAT 45 04 04 LONG 105 52 10)											
OCT , 1978 17...	1420	1.96	1140	.06	.02	.98	1.0	.300	.010	330	20
06324710 - POWDER RIVER AT BROADUS MT (LAT 45 25 40 LONG 105 24 15)											
OCT , 1978 17...	1460	2.09	1190	.04	.00	1.1	1.1	.240	.010	320	20

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SITES

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

YELLOWSTONE RIVER BASIN

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE (DEG C) (00010)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)
06325000 - LITTLE POWDER RIVER AT BIDDLE, MT. (LAT 45 06 00 LONG 105 19 00)											
OCT , 1978											
21...	0900	4.7	3640	8.0	3.5	8.0	920	530	170	120	580
452739105193901 - LITTLE POWDER RIVER ABOVE CONFLUENCE (LAT 45 27 39 LONG 105 19 39.01)											
OCT , 1978											
21...	1115	9.0	2730	8.1	14.5	8.5	530	120	110	63	480
454508105051501 - POWDER RIVER AT POWDERVILLE (LAT 45 45 08 LONG 105 05 15.01)											
OCT , 1978											
18...	0800	284	2220	8.7	15.0	7.0	620	350	130	72	290
06326000 - POWDER RIVER NEAR MIZPAH, MT. (LAT 46 15 00 LONG 105 16 00)											
OCT , 1978											
18...	1100	300	2250	8.4	11.0	8.0	570	330	140	53	300
06326050 - MIZPAH CREEK AT OLIVE, MT. (LAT 45 32 30 LONG 105 31 40)											
OCT , 1978											
18...	0730	.15	5180	8.0	4.0	8.0	2200	1900	260	370	580
06326200 - MIZPAH CREEK NEAR VOLBORG, MT. (LAT 45 56 00 LONG 105 23 40)											
OCT , 1978											
18...	1000	.02	3000	8.2	12.5	7.5	660	180	110	94	490
06326300 - MIZPAH CREEK NEAR MIZPAH, MT. (LAT 46 15 39 LONG 105 17 34)											
OCT , 1978											
18...	1130	.23	2430	8.5	13.0	9.0	240	0	51	27	470
06326520 - POWDER RIVER AT MOUTH NEAR TERRY MT (LAT 46 44 15 LONG 105 25 43)											
OCT , 1978											
18...	1030	297	2340	8.3	10.0	8.0	600	360	130	66	300

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SITES

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

YELLOWSTONE RIVER BASIN

DATE	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	BICAR- BONATE (MG/L AS HCO3) (00440)	CAR- BONATE (MG/L AS CO3) (00445)	ALKA- LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS- SOLVED (MG/L AS CO2) (00405)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)
06325000 - LITTLE POWDER RIVER AT BIDDLE, MT. (LAT 45 06 00 LONG 105 19 00)											
OCT , 1978 21...	8.3	18	480	0	400	7.7	1700	27	.4	8.8	3040
452739105193901 - LITTLE POWDER RIVER ABOVE CONFLUENCE (LAT 45 27 39 LONG 105 19 39.01)											
OCT , 1978 21...	9.0	12	500	0	410	6.4	1100	16	.3	11	2020
454508105051501 - POWDER RIVER AT POWDERVILLE (LAT 45 45 08 LONG 105 05 15.01)											
OCT , 1978 18...	5.1.	7.2	290	22	270	1.1	750	160	.5	7.3	1590
06326000 - POWDER RIVER NEAR MIZPAH, MT. (LAT 46 15 00 LONG 105 16 00)											
OCT , 1978 18...	5.5	7.3	220	34	240	1.8	790	160	.5	7.9	1640
06326050 - MIZPAH CREEK AT OLIVE, MT. (LAT 45 32 30 LONG 105 31 40)											
OCT , 1978 18...	5.4	25	410	0	330	6.6	3100	25	.2	9.2	5090
06326200 - MIZPAH CREEK NEAR VOLBORG, MT. (LAT 45 56 00 LONG 105 23 40)											
OCT , 1978 18...	8.3	12	590	0	490	6.0	1200	11	.4	12	2320
06326300 - MIZPAH CREEK NEAR MIZPAH, MT. (LAT 46 15 39 LONG 105 17 34)											
OCT , 1978 18...	13	8.9	510	26	460	2.8	820	9.5	.6	6.1	1440
06326520 - POWDER RIVER AT MOUTH NEAR TERRY MT (LAT 46 44 15 LONG 105 25 43)											
OCT , 1978 18...	5.3	7.5	290	0	240	2.3	820	160	.5	8.1	1670

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

YELLOWSTONE RIVER BASIN

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
06325000 - LITTLE POWDER RIVER AT BIDDLE, MT. (LAT 45 06 00 LONG 105 19 00)											
OCT , 1978 21...	2860	4.13	38.6	.03	.03	.51	.54	.010	.000	220	30
452739105193901 - LITTLE POWDER RIVER ABOVE CONFLUENCE (LAT 45 27 39 LONG 105 19 39.01)											
OCT , 1978 21...	2040	2.75	49.1	.05	.02	.45	.47	.020	.010	180	30
454508105051501 - POWDER RIVER AT POWDERVILLE (LAT 45 45 08 LONG 105 05 15.01)											
OCT , 1978 18...	1580	2.16	1220	.04	.01	.52	.53	.010	.010	300	20
06326000 - POWDER RIVER NEAR MIZPAH, MT. (LAT 46 15 00 LONG 105 16 00)											
OCT , 1978 18...	1600	2.23	1330	.02	.01	1.5	1.5	.180	.000	290	10
06326050 - MIZPAH CREEK AT OLIVE, MT. (LAT 45 32 30 LONG 105 31 40)											
OCT , 1978 18...	4570	6.92	2.06	.00	.03	1.3	1.3	.110	.050	480	50
06326200 - MIZPAH CREEK NEAR VOLBORG, MT. (LAT 45 56 00 LONG 105 23 40)											
OCT , 1978 18...	2220	3.16	.13	.01	.00	.52	.52	.020	.010	410	20
06326300 - MIZPAH CREEK NEAR MIZPAH, MT. (LAT 46 15 39 LONG 105 17 34)											
OCT , 1978 18...	1670	1.96	.89	.32	.01	1.9	1.9	.050	.010	360	20
06326520 - POWDER RIVER AT MOUTH NEAR TERRY MT (LAT 46 44 15 LONG 105 25 43)											
OCT , 1978 18...	1640	2.27	1340	.00	.01	.88	.89	.170	.000	300	20

CASCADE COUNTY

472651111221101. Local number 20N03E32AADD.
LOCATION.--Lat 47°26'51", long 111°22'11", Hydrologic Unit 10030102, at Sun River Bench, Great Falls. Owner: D. Van Hining.
AQUIFER.--Flood Member of Blackleaf Formation.
WELL CHARACTERISTICS.--Drilled domestic artesian well, diameter 6 in (0.15 m), depth 88 ft (27 m), cased with plastic pipe, open end.
DATUM.--Land-surface datum is 3,722 ft (1,134 m), from topographic map. Measuring point: Top of casing, 1.0 ft (0.3 m) above land-surface datum.
PERIOD OF RECORD.--May 1973 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water-level measured, 31.10 ft (9.48 m) below land-surface datum, Dec. 23, 1965; lowest 43.10 ft (13.14 m) below land-surface datum, June 6, 1947.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	WATER LEVEL
June 6	40.77

CHOTEAU COUNTY

481542110023501. Local number 29N13E21AA2.
LOCATION.--Lat 48°15'42", long 110°02'35", Hydrologic Unit 10050005. Owner: U.S. Geological Survey.
AQUIFER.--Alluvium of Quaternary Age.
WELL CHARASTERISTICS.--Drilled observation artesian well, diameter 2 in (0.06 m), depth 210 ft (64 m), cased to 167 ft (51 m), open end.
DATUM.--Land-surface datum is 2,680 ft (817 m), National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 0.40 ft (0.12 m) above land-surface datum.
REMARKS.--Water-level affected by nearby irrigation well pumpage.
PERIOD OF RECORD.--1947 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 15.28 ft (4.66 m) below land-surface datum, Aug. 2, 1972; lowest, 27.03 ft (8.24 m) below land-surface datum, July 28, 1976.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 6	19.90	July 25	23.49
Feb. 21	20.50	Aug. 29	24.59

DEER LODGE COUNTY

460632112493501. Local number, 04N10W10DC2.
LOCATION.--Lat 46°06'32", long 112°49'35", Hydrologic Unit 17010201. Owner: Village of Opportunity.
AQUIFER.--Alluvium of Quaternary Age.
WELL CHARACTERISTICS.--Driven fire protection water-table well, diameter 4 in (0.1 m), depth 20.0 ft (6.1 m), steel casing.
DATUM.--Land-surface datum is 4,979 ft (1,518 m), National Geodetic Vertical Datum of 1929. Measuring point: Bottom of 6 in (0.15 m) outlet pipe, 1.3 ft (0.4 m) above land-surface datum.
PERIOD OF RECORD.--July 1960 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level 3.27 ft (1.00 m) below land-surface datum, Feb. 27, 1979; lowest 5.22 ft (1.59 m) below land-surface datum, Mar. 13, 1972.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	WATER LEVEL	DATE	WATER LEVEL
Nov. 29	4.42	May 21	3.27
Feb. 21	3.27	Sept. 11	4.05

DEER LODGE COUNTY

461420112504501. Local number 06N10W27CCCC01.
LOCATION.--Lat 46°14'20", long 112°50'45", Hydrologic Unit 17010201. Owner: Mount Haggin Land and Livestock Company.
AQUIFER.--Deposits of Tertiary Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in (0.15 m), depth 88.8 ft (27.1 m) steel casing.
DATUM.--Land-surface datum is 5,006 ft (1,526 m), Natioanl Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 0.50 ft (0.15 m) above land-surface datum.
PERIOD OF RECORD.--June 1960 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level 30.14 ft (9.1 m) below land-surface datum, Aug. 23, 1978; lowest 66.17 ft (20.17 m) below land-surface datum, June 9, 1969.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	WATER LEVEL	DATE	WATER LEVEL
Nov. 29	32.54	Sept. 11	32.99
Feb. 21	55.69		

DEER LODGE COUNTY

461515112441201. Local number, 06N09W21CD01.
LOCATION.--Lat 46°15'15", long 112°44'12", Hydrologic Unit 17010201. Owner: W. Beck.
AQUIFER.--Deposits of Tertiary Age.
WELL CHARACTERISTICS.--Drilled domestic and stock artesian well, diameter 6 in (0.15 m), depth 150 ft (46 m), steel casing.
DATUM.--Land-surface datum is 4,786 ft (1,459 m), National Geodetic Vertical Datum of 1929. Measuring point: Top of well cap, 0.50 ft (0.15 m) above land-surface datum.
PERIOD OF RECORD.--September 1960 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level 88.97 ft (27.12 m) below land-surface datum, Aug. 20, 1968; lowest 93.24 ft (28.42 m) below land-surface datum, Mar. 29, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	WATER LEVEL	DATE	WATER LEVEL
Nov. 11	90.92	Sept. 11	92.59
Feb. 21	91.73		

FLATHEAD COUNTY

480544114104501. Local number, 27N20W17CC.
LOCATION.--Lat 48°05'44", long 114°10'45", Hydrologic Unit 17010208. Owner: U.S. Geological Survey.
AQUIFER.--Alluvium of Quaternary Age.
WELL CHARACTERISTICS.--Bored observation water-table well, diameter 1 1/2 in (3.8 cm), depth 9.6 ft (2.9 m), cased with steel pipe.
DATUM.--Land-surface datum is 2,896 ft (883 m), National Geodetic Vertical Datum of 1929. Measuring point: Top of pipe, 1.5 ft (0.5 m) above land-surface datum.
PERIOD OF RECORD.--October 1963 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 1.79 ft (0.55 m) below land-surface datum, Apr. 2, 1979; lowest 5.32 ft (1.62 m) below land-surface datum, Sept. 22, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	WATER LEVEL	DATE	WATER LEVEL
Jan. 17	4.77	June 11	3.39
Apr. 2	1.79	Sept. 4	4.68

FLATHEAD COUNTY

481458114111701. Local number, 29N20W29BD.
LOCATION.--Lat 48°14'58", long 114°11'17", Hydrologic Unit 17010208. Owner: John Byrne.
AQUIFER.--Glacial deposits of Quaternary Age.
WELL CHARACTERISTIC.--Drilled unused artesian well, diameter 5 in (0.13 m), depth 151 ft (46 m), steel casing.
DATUM.--Land-surface datum is 2,983 ft (909 m), National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 2.5 ft (0.8 m) above land-surface datum.
PERIOD OF RECORD.--September 1963 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 19.88 ft (6.06 m) below land-surface datum, Aug. 18, 1969; lowest 39.24 ft (11.96 m) below land-surface datum, June 11, 1975.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	WATER LEVEL	DATE	WATER LEVEL
Jan. 17	20.73	June 6	35.55
Apr. 2	21.89	Sept. 5	24.42

FLATHEAD COUNTY

481519114182501. Local number, 29N21W20CCC.
LOCATION.--Lat 48°15'19", long 114°18'25", Hydrologic Unit 17010210. Owner: Luthern Cemetary Association.
AQUIFER.--Glacial deposits of Quaternary Age.
WELL CHARACTERISTICS.--Drilled irrigation artesian well, diameter 6 in (0.16 m), depth 278 ft (85 m), steel casing.
DATUM.--Land-surface datum is 3,027 ft (923 m), National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 5.0 ft (1.5 m) below land-surface datum.
REMARKS.--Used in irrigation season only.
PERIOD OF RECORD.--October 1963 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 100.00 ft (30.448 m) below land-surface datum, July 1, 1964; lowest 108.13 ft (32.96 m) below land-surface datum, Sept. 22, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	WATER LEVEL	DATE	WATER LEVEL
Jan. 17	105.58	June 6	104.76
Apr. 2	105.34	Sept. 5	107.38

FLATHEAD COUNTY

481653114114901. Local number, 29N20W18AA1.
LOCATION.--Lat 48°16'53", long 114°11'49", Hydrologic Unit 17010208. Owner: William Anderson.
AQUIFER.--Eolian deposits of Quaternary Age.
WELL CHARACTERISTICS.--Dug unused water-table well, diameter 56 in (1.4 m), depth 20.0 ft (6.1 m), concrete casing.
DATUM.--Land-surface datum is 3,050 ft (930 m), National Geodetic Vertical Datum of 1929. Measuring point: Top of 3/4 in (1.9 cm) pipe, 0.7 ft (0.2 m) below land-surface datum.
PERIOD OF RECORD.--October 1963 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level 14.73 ft (4.49 m) below land-surface datum, June 11, 1970; lowest 19.36 ft (5.90 m) below land-surface datum, Feb. 15, 1978.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	WATER LEVEL	DATE	WATER LEVEL
Jan. 17	18.12	June 6	17.19
Apr. 2	17.16		

GALLATIN COUNTY

453937111110301. Local number 02S04E13CC.
LOCATION.--Lat 45°39'37", long 111°11'03", Hydrologic Unit 10020008. Owner: Unknown.
AQUIFER.--Alluvium of Quaternary Age.
WELL CHARACTERISTICS.--Dug observation water-table well, diameter 12 in (0.30 m), depth 11 ft (3.35 m), cased with tile.
DATUM.--Land-surface datum is 4,738 ft (1,444 m), National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 0.5 ft (0.15 m) above land-surface datum.
PERIOD OF RECORD.--June 1947 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level 2.54 ft (0.77 m) below land-surface datum, June 27, 1952 lowest 10.40 ft (3.17 m) below land-surface datum, Feb. 20, 1971.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 5	6.32	Mar. 7	8.50
Nov. 13	6.22	Apr. 17	8.31
Dec. 19	6.46	June 7	5.65
Jan. 31	8.48	July 25	5.11
		Aug. 23	5.67

GLACIER COUNTY

483345113004501. Local number, 32N11W03AD.
LOCATION.--Lat 48°33'45", long 113°00'45", Hydrologic Unit 10030202. Owner: U.S. Geological Survey.
AQUIFER.--Glacier drift of Pleistocene Age.
WELL CHARACTERISTICS.--Drilled observation water-table well, diamter 1 1/4 in (3 cm), depth 12 ft (3.66 m), cased with pipe.
DATUM.--Land-surface datum is 4,416 ft (1,346 m), National Geodetic Vertical Datum of 1929. Measuring point: Top of pipe, 3.30 ft (1.01 m) above land-surface datum.
PERIOD OF RECORD.--January 1968 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level 4.43 ft (1.35 m) below land-surface datum, May 2; 1979, lowest 7.82 ft (2.38 m) below land-surface datum, Aug. 2, and Aug. 28, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 10	7.13	Mar. 1	6.77
Nov. 16	7.19	May 2	4.43
Jan. 31	6.29	Aug. 3	7.44
		Sept. 12	7.72

HILL COUNTY

483138109481001. Local number, 32N15E17DDD.
LOCATION.--Lat 48°31'31", long 109°48'08", Hydrologic Unit 10050004. Owner: U.S. Geological Survey.
AQUIFER.--Alluvium of Quaternary Age.
WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 2 in (0.8 cm), depth 180 ft (55 m), cased with pipe to 152 ft (46 m).
DATUM.--Land-surface datum is 2,580 ft (786 m), National Geodetic Vertical Datum of 1929. Measuring point: Top of coupling, 0.2 ft (0.08 m) above land-surface datum.
PERIOD OF RECORD.--May 1947 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level 38.46 ft (11.72 m) below land-surface datum, Aug. 29, 1979; lowest 52.56 ft (16.02 m) below land-surface datum, June 18, 1947.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 6	38.80	Feb. 21	40.45
Jan. 5	40.20	Aug. 29	38.46
		Sept. 25	38.53

PHILLIPS COUNTY

482732107201201. Local number, 31N34E08CA.
LOCATION.--Lat 48°27'32", long 107°20'12", Hydrologic Unit 10050014. Owner: W.D. Miller.
AQUIFER.--Alluvium of Quaternary Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 5 in (13 cm), depth 15 ft (5 m), cased with pipe.
DATUM.--Land-surface datum is 2,175 ft (663 m), National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 1.70 ft (0.52 m) above land-surface datum.
REMARKS.--Originally drilled to depth of 50 ft (15 m) with gravel from 45 to 50 ft (14 to 15 m).
PERIOD OF RECORD.--June 1947 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level 0.40 ft (0.12 m) below land-surface datum, July 18, 1963; lowest 6.90 ft (2.10 m) below land-surface datum, Mar. 11, 1953.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 19	4.70	May 8	4.53
Nov. 21	4.69	June 5	4.43
Dec. 21	2.81	July 12	4.36
Jan. 10	4.76	Aug. 24	4.26
		Sept. 13	4.23

POWELL COUNTY

461847112464001. Local number, 07N09W31CD.
LOCATION.--Lat 46°18'47", long 112°46'40", Hydrologic Unit 17010201. Owner. L. Johnson.
AQUIFER.--Deposits of Teritiary Age.
WELL CHARACTERISTICS.--Dug unused water-table well, diameter 36 in (0.91 m), depth 50 ft (15 m), cribbed with rock.
DATUM.--Land-surface datum is 4,729 ft (1,441 m) National Geodetic Vertical Datum of 1929. Measuring point: Top of wood cover, at land-surface datum.
PERIOD OF RECORD.--September 1957 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level 32.25 ft (9.83 m) below land-surface datum, Aug. 26, 1975; lowest 52.12 ft (15.89 m) below land-surface datum, May 26, 1976.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	WATER LEVEL	DATE	WATER LEVEL
Nov. 29	42.57	Feb. 21	well caved in to 46± ft

POWELL COUNTY

463540112320301. Local number, 10N07W30BB.
LOCATION.--Lat 46°35'40", long 112°32'03", Hydrologic Unit 17010201. Owner: Powell County School District.
AQUIFER.--Sands and gravels of Tertiary Age.
WELL CHARACTERISTICS.--Drilled unused artesian well, diameter 6 in (0.15 m), depth 69.6 ft (21.2 m), steel casing.
DATUM.--Land-surface datum is 4,825 ft (1,471 m), National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 0.5 ft (0.15 m) above land-surface datum.
PERIOD OF RECORD.--June 1961 to March 1963, September 1967 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level 28.77 ft (8.77 m) below land-surface datum, May 21, 1979; lowest 34.37 ft (10.48 m) below land-surface datum, Aug. 20, 1968.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	WATER LEVEL	DATE	WATER LEVEL
Nov. 29	32.86	May 21	28.77
Feb. 21	33.44	Sept. 19	30.63

POWELL COUNTY

463530112360301. Local number, 10N08W28AA3.
LOCATION.--Lat 46°35'30", long 112°36'03", Hydrologic Unit 17010201. Owner: H.C. Young.
AQUIFER.--Alluvium of Quaternary Age.
WELL CHARACTERISTICS.--Drilled domestic water-table well, diameter 6 in (0.15 m), depth 23.4 ft (7.13 m), steel casing.
DATUM.--Land-surface datum is 4,709 ft (1,435 m), National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 0.7 ft (0.2 m) above land-surface datum.
PERIOD OF RECORD.--April 1962 to December 1963, March 1967 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level 3.06 ft (0.93 m) below land-surface datum June 9, 1969; lowest 10.26 ft (3.13 m) below land-surface datum, March 9, 1967.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCOTBER 1978 TO SEPTEMBER 1979

DATE	WATER LEVEL	DATE	WATER LEVEL
Nov. 29	6.96	Feb. 21	4.41
		Sept. 11	4.06

PRAIRIE COUNTY

464457104390001. Local number, 12N56E34DA.
LOCATION.--Lat 46°44'57", long 104°39'00", Hydrologic Unit 10100004. Owner: Shell Oil Company.
AQUIFER.--Basal Hell Creek-Fox Hills Sandstone.
WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 4 in (0.1 m), depth 1,467 ft (447 m), cased with pipe.
DATUM.--Land-surface datum is 2,707 ft (825 m), National Geodetic Vertical Datum of 1929. Measuring point: Top of casing 3.1 ft (0.9 m) above land-surface datum.
REMARKS.--Water level affected by industrial pumpage.
PERIOD OF RECORD.--December 1962 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level 224.89 ft (68.55 m) below land-surface datum, Dec. 13, 1962; lowest 382.45 ft (116.57 m) below land-surface datum, May 26, 1971.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 4	306.84	July 2	299.75
May 23	303.11	Aug. 16	300.8
		Sept. 20	296.76

PRAIRIE COUNTY

464624104380601. Local number, 12N56E23DC.
LOCATION.--Lat 46°46'24", long 104°38'06", Hydrologic Unit 10100004. Owner: Shell Oil Company.
AQUIFER.--Basal Hell Creek-Fox Hills Sandstone.
WELL CHARACTERISTICS.--Drilled unused artesian well, diameter 4 in (0.1 m), depth 1,185 ft (361 m), cased with pipe.
DATUM.--Land-surface datum is 2,701 ft (823 m), National Geodetic Vertical Datum of 1929. Measuring point: Top of casing 1.5 ft (0.5 m) above land-surface datum.
REMARKS.--Water level affected by industrial pumpage.
PERIOD OF RECORD.--October 1972 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level 219.50 ft (66.90 m) below land-surface datum, Oct. 5, 1962; lowest 493.84 ft (150.52 m) below land-surface datum, Mar. 3, 1971.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 4	303.51	May 23	298.87
Nov. 28	314.70	July 2	297.88
Mar. 20	326.39	Aug. 16	296.6
Apr. 25	300.93	Sept. 20	293.90

RAVALLI COUNTY

461518114090801. Local number, 06N20W19CC1.
LOCATION.--Lat 46°15'18", long 114°09'08", Hydrologic Unit 17010205. Owner: Bonneville Power Administration.
AQUIFER.--Flood plain Alluvium of Quaternary Age.
WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 6 in (0.15 m), depth 40 ft (12 m), cased with pipe.
DATUM.--Land-surface datum is 3,557 ft (1,084 m), National Geodetic Vertical Datum of 1929. Measuring point: Top of recorder shelf 3.0 ft (0.9 m) above land-surface datum.
REMARKS.--Water-stage recorder installed September 1970.
PERIOD OF RECORD.--September 1970 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level 3.06 ft (0.93 m) below land-surface datum, June 25, 1971; lowest, 17.86 ft (5.44 m) below land-surface datum, Apr. 26, 1977.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 19	9.72	Apr. 26	16.65
Nov. 28	12.85	May 24	14.38
Dec. 19	14.13	June 26	5.96
Jan. 25	15.82	July 25	6.33
Feb. 21	15.67	Aug. 29	5.52
Mar. 27	16.35	Sept. 20	7.37

RAVALLI COUNTY

463750114033001. Local number, 10N20W13BA.
LOCATION.--Lat 46°37'50", long 114°03'30", Hydrologic Unit 17010205. Owner: Bonneville Power Administration.
AQUIFER.--Alluvium of Quaternary Age.
WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 6 in (0.15 m), depth 50.5 ft (15.4 m), cased with pipe.
DATUM.--Land-surface datum is 3,200 ft (975 m), National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 0.5 ft (0.15 m) above land-surface datum.
PERIOD OF RECORD.--May 1959 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water-level 2.48 ft (0.76 m) below land-surface datum, June 15, 1959; lowest, 7.55 ft (2.30 m) below land-surface datum, April 15, 1975.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	WATER LEVEL	DATE	WATER LEVEL
Nov. 29	6.71	Sept. 19	6.74
Feb. 21	6.92		

RAVALLI COUNTY

463130114064402. Local number 09N20W21ADB02.
LOCATION.--Lat 46°31'30", long 114°06'44", Hydrologic Unit 17010205. Owner: D. Shea.
AQUIFER.--Alluvium underlying river terraces.
WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 4 in (0.1 m), depth 40 ft (13 m), cased with pipe. This well replaces 463140114064001 (09N20W21AD1).
DATUM.--Land-surface datum is 3,308 ft (1,008 m), National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 0.5 ft (0.15 m) above land-surface datum.
PERIOD OF RECORD.--September 1976 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level 16.87 ft (0.52 m) below land-surface datum, June 26, 1978; lowest, 34.01 ft (8.53 m) below land-surface datum, Mar. 28, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 19	24.85	Apr. 25	30.32
Nov. 28	30.34	May 24	20.51
Dec. 19	29.67	June 25	17.61
Jan. 25	31.80	July 25	19.52
Feb. 21	31.21	Aug. 29	22.52
Mar. 27	31.50		

SANDERS COUNTY

474251114385201. Local number, 23N24W34ADA.
LOCATION.--Lat 47°42'51", long 114°38'52", Hydrologic Unit 17010212. Owner: U.S Bureau of Indian Affairs.
AQUIFER.--Glacial lake deposits of Quaternary age.
WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 18 in (0.46 m), depth 377 ft (115 m), perforated with 480 perforations.
DATUM.--Land-surface datum is 2,878.6 ft (877.4 m), National Geodetic Vertical Datum of 1929. Measuring point: Top of casings, 1.0 ft (0.3 m) above land-surface datum.
REMARKS.--Water-stage recorder installed January 1971. Submersible pump installed for stock purposes.
PERIOD OF RECORD.--March 1943 to June 1943, October 1970 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 104.35 ft (31.81 m) below land-surface datum, Nov. 30, 1978; lowest, 116.40 ft (35.48 m) below land-surface datum, Aug. 30, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	WATER LEVEL	DATE	WATER LEVEL
Nov. 30	104.35	May 22	105.30
Feb. 22	105.19	Sept. 20	109.75

TOOLE COUNTY

485311111540901. Local number, 36N02W08CC.
LOCATION.--Lat 48°53'11", long 111°54'09", Hydrologic Unit 10030203. Owner: C. Luckenbill.
AQUIFER.--Gravel of Pleistocene Age.
WELL CHARACTERISTICS.--Driven observation water-table well in backfilled dug well, diameter 1 1/4 in (0.03 m), depth 15.3 ft (4.7 m), cased with pipe.
DATUM.--Land-surface datum is 3,330 ft (1,015 m), National Geodetic Vertical Datum of 1929. Measuring point: Top of pipe at land-surface datum.
PERIOD OF RECORD.--July 1947 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level 1.22 ft (0.37 m) below land-surface datum, May 16, 1967; lowest, 10.89 ft (3.32 m) below land-surface datum, Dec. 19, 1961.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 4	3.60	June 27	1.57
May 1	1.29		

PARM. CODE	NEW TERMINOLOGY--FIRST LINE OLD TERMINOLOGY--SECOND LINE
00623	NITROGEN, AMMONIA PLUS ORGANIC, DISSOLVED (MG/L AS N)
00623	NITROGEN, KJELDAHL, DISSOLVED (MG/L AS N)
00624	NITROGEN, AMMOMIA PLUS ORGANIC, SUSPENDED TOTAL (MG/L AS N)
00624	NITROGEN, KJELDAHL, SUSPENDED (MG/L AS N)
00625	NITROGEN, AMMONIA PLUS ORGANIC, TOTAL (MG/L AS N)
00625	NITROGEN, KJELDAHL, TOTAL (MG/L AS N)
00626	NITROGEN, AMMONIA PLUS ORGANIC, TOTAL IN BOTTOM MATERIAL, DRY WT (MG/KG AS N)
00626	NITROGEN, KJELDAHL, TOTAL IN BOTTOM MATERIAL, DRY WT (MG/KG AS N)
00683	CARBON, ORGANIC, SUSPENDED TOTAL (MG/L AS C)
00683	CARBON, ORGANIC, SUSPENDED (MG/L AS C)
00688	CARBON, INORGANIC, SUSPENDED TOTAL (MG/L AS C)
00688	CARBON, INORGANIC, SUSPENDED (MG/L AS C)
00689	CARBON, ORGANIC, SUSPENDED TOTAL (MG/L AS C)
00689	CARBON, ORGANIC, SUSPENDED (MG/L AS C)
00694	CARBON, INORGANIC PLUS ORGANIC, SUSPENDED TOTAL (MG/L AS C)
00694	CARBON, INORGANIC PLUS ORGANIC, SUSPENDED (MG/L AS C)
00916	CALCIUM, TOTAL RECOVERABLE (MG/L AS CA)
00916	CALCIUM, TOTAL (MG/L AS CA)
00926	MAGNESIUM, SUSPENDED RECOVERABLE (MG/L AS MG)
00926	MAGNESIUM, SUSPENDED (MG/L AS MG)
00927	MAGNESIUM, TOTAL RECOVERABLE (MG/L AS MG)
00927	MAGNESIUM, TOTAL (MG/L AS MG)
01001	ARSENIC, SUSPENDED TOTAL (UG/L AS AS)
01001	ARSENIC, SUSPENDED (UG/L AS AS)
01006	BARIUM, SUSPENDED RECOVERABLE (UG/L AS BA)
01006	BARIUM, SUSPENDED (UG/L AS BA)
01007	BARIUM, TOTAL RECOVERABLE (UG/L AS BA)
01007	BARIUM, TOTAL (UG/L AS BA)
01008	BARIUM, RECOVERABLE FROM BOTTOM MATERIAL (UG/G AS BA)
01008	BARIUM, TOTAL IN BOTTOM MATERIAL (UG/G AS BA)
01011	BERYLLIUM, SUSPENDED RECOVERABLE (UG/L AS BE)
01011	BERYLLIUM, SUSPENDED (UG/L AS BE)
01012	BERYLLIUM, TOTAL RECOVERABLE (UG/L AS BE)
01012	BERYLLIUM, TOTAL (UG/L AS BE)
01013	BERYLLIUM, RECOVERABLE FROM BOTTOM MATERIAL (UG/G AS BE)
01013	BERYLLIUM, TOTAL IN BOTTOM MATERIAL (UG/G AS BE)
01016	BISMUTH, SUSPENDED TOTAL (UG/L AS BI)
01016	BISMUTH, SUSPENDED (UG/L AS BI)
01021	BORON, SUSPENDED RECOVERABLE (UG/L AS B)
01021	BORON, SUSPENDED (UG/L AS B)
01022	BORON, TOTAL RECOVERABLE (UG/L AS B)
01022	BORON, TOTAL (UG/L AS B)
01023	BORON, RECOVERABLE FROM BOTTOM MATERIAL (UG/G AS B)
01023	BORON, TOTAL IN BOTTOM MATERIAL (UG/G AS B)
01026	CADMIUM, SUSPENDED RECOVERABLE (UG/L AS CD)
01026	CADMIUM, SUSPENDED (UG/L AS CD)
01027	CADMIUM, TOTAL RECOVERABLE (UG/L AS CD)
01027	CADMIUM, TOTAL (UG/L AS CD)
01028	CADMIUM, RECOVERABLE FROM BOTTOM MATERIAL (UG/G AS CD)
01028	CADMIUM, TOTAL IN BOTTOM MATERIAL (UG/G AS CD)
01029	CHROMIUM, RECOVERABLE FROM BOTTOM MATERIAL (UG/G AS CR)
01029	CHROMIUM, TOTAL IN BOTTOM MATERIAL (UG/G AS CR)
01031	CHROMIUM, SUSPENDED RECOVERABLE (UG/L AS CR)
01031	CHROMIUM, SUSPENDED (UG/L AS CR)
01034	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)
01034	CHROMIUM, TOTAL (UG/L AS CR)
01036	COBALT, SUSPENDED RECOVERABLE (UG/L AS CO)
01036	COBALT, SUSPENDED (UG/L AS CO)

PARM. CODE	NEW TERMINOLOGY--FIRST LINE OLD TERMINOLOGY--SECOND LINE
01037	COBALT, TOTAL RECOVERABLE (UG/L AS CO)
01037	COBALT, TOTAL (UG/L AS CO)
01038	COBALT, RECOVERABLE FROM BOTTOM MATERIAL (UG/G AS CO)
01038	COBALT, TOTAL IN BOTTOM MATERIAL (UG/G AS CO)
01041	COPPER, SUSPENDED RECOVERABLE (UG/L AS CU)
01041	COPPER, SUSPENDED (UG/L AS CU)
01042	COPPER, TOTAL RECOVERABLE (UG/L AS CU)
01042	COPPER, TOTAL (UG/L AS CU)
01043	COPPER, RECOVERABLE FROM BOTTOM MATERIAL (UG/G AS CU)
01043	COPPER, TOTAL IN BOTTOM MATERIAL (UG/G AS CU)
01044	IRON, SUSPENDED RECOVERABLE (UG/L AS FE)
01044	IRON, SUSPENDED (UG/L AS FE)
01045	IRON, TOTAL RECOVERABLE, (UG/L AS FE)
01045	IRON, TOTAL (UG/L AS FE)
01050	LEAD, SUSPENDED RECOVERABLE (UG/L AS PB)
01050	LEAD, SUSPENDED (UG/L AS PB)
01051	LEAD, TOTAL RECOVERABLE (UG/L AS PB)
01051	LEAD, TOTAL (UG/L AS PB)
01052	LEAD, RECOVERABLE FROM BOTTOM MATERIAL (UG/G AS PB)
01052	LEAD, TOTAL IN BOTTOM MATERIAL (UG/G AS PB)
01053	MANGANESE, RECOVERABLE FROM BOTTOM MATERIAL (UG/G AS MN)
01053	MANGANESE, TOTAL IN BOTTOM MATERIAL (UG/G AS MN)
01054	MANGANESE, SUSPENDED RECOVERABLE (UG/L AS MN)
01054	MANGANESE, SUSPENDED (UG/L AS MN)
01055	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)
01055	MANGANESE, TOTAL (UG/L AS MN)
01061	MOLYBDENUM, SUSPENDED RECOVERABLE (US/L AS MO)
01061	MOLYBDENUM, SUSPENDED (UG/L AS MO)
01062	MOLYBDENUM, TOTAL RECOVERABLE (UG/L AS MO)
01062	MOLYBDENUM, TOTAL (UG/L AS MO)
01063	MOLYBDENUM, RECOVERABLE FROM BOTTOM MATERIAL (UG/G AS MO)
01063	MOLYBDENUM, TOTAL IN BOTTOM MATERIAL (UG/G AS MO)
01066	NICKEL, SUSPENDED RECOVERABLE (UG/L AS NI)
01066	NICKEL, SUSPENDED (UG/L AS NI)
01067	NICKEL, TOTAL RECOVERABLE (UG/L AS NI)
01067	NICKEL, TOTAL (UG/L AS NI)
01068	NICKEL, RECOVERABLE FROM BOTTOM MATERIAL (UG/G AS NI)
01068	NICKEL, TOTAL IN BOTTOM MATERIAL (UG/G AS NI)
01076	SILVER, SUSPENDED RECOVERABLE (UG/L AS AG)
01076	SILVER, SUSPENDED (UG/L AS AG)
01077	SILVER, TOTAL RECOVERABLE (UG/L AS AG)
01077	SILVER, TOTAL (UG/L AS AG)
01078	SILVER, RECOVERABLE FROM BOTTOM MATERIAL (UG/G AS AG)
01078	SILVER, TOTAL IN BOTTOM MATERIAL (UG/G AS AG)
01081	STRONTIUM, SUSPENDED RECOVERABLE (UG/L AS SR)
01081	STRONTIUM, SUSPENDED (UG/L AS SR)
01082	STRONTIUM, TOTAL RECOVERABLE (UG/L AS SR)
01082	STRONTIUM, TOTAL (UG/L AS SR)
01083	STRONTIUM, RECOVERABLE FROM BOTTOM MATERIAL (UG/G AS SR)
01083	STRONTIUM, TOTAL IN BOTTOM MATERIAL (UG/G AS SR)
01086	VANADIUM, SUSPENDED TOTAL (UG/L AS V)
01086	VANADIUM, SUSPENDED (UG/L AS V)
01091	ZINC, SUSPENDED RECOVERABLE (UG/L AS ZN)
01091	ZINC, SUSPENDED (UG/L AS ZN)
01092	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)
01092	ZINC, TOTAL (UG/L AS ZN)

LIST OF REVISED QUALITY-OF-WATER PARAMETER CODES--Continued

PARM. CODE	NEW TERMINOLOGY--FIRST LINE OLD TERMINOLOGY--SECOND LINE
01093	ZINC, RECOVERABLE FROM BOTTOM MATERIAL (UG/G AS ZN)
01093	ZINC, TOTAL IN BOTTOM MATERIAL (UG/G AS ZN)
01096	ANTIMONY, SUSPENDED TOTAL (UG/L AS SB)
01096	ANTIMONY, SUSPENDED (UG/L AS SB)
01101	TIN, SUSPENDED RECOVERABLE (UG/L AS SN)
01101	TIN, SUSPENDED (UG/L AS SN)
01102	TIN, TOTAL RECOVERABLE (UG/L AS SN)
01102	TIN, TOTAL (UG/L AS SN)
01105	ALUMINUM, TOTAL RECOVERABLE (UG/L AS AL)
01105	ALUMINUM, TOTAL (UG/L AS AL)
01107	ALUMINUM, SUSPENDED RECOVERABLE (UG/L AS AL)
01107	ALUMINUM, SUSPENDED (UG/L AS AL)
01108	ALUMINUM, RECOVERABLE FROM BOTTOM MATERIAL (UG/G AS AL)
01108	ALUMINUM, TOTAL IN BOTTOM MATERIAL (UG/G AS AL)
01116	CESIUM, SUSPENDED TOTAL (UG/L AS CS)
01116	CESIUM, SUSPENDED (UG/L AS CS)
01121	GALLIUM, SUSPENDED TOTAL (UG/L AS GA)
01121	GALLIUM, SUSPENDED (UG/L AS GA)
01126	GERMANIUM, SUSPENDED TOTAL (UG/L AS GE)
01126	GERMANIUM, SUSPENDED (UG/L AS GE)
01131	LITHIUM, SUSPENDED RECOVERABLE (UG/L AS LI)
01131	LITHIUM, SUSPENDED (UG/L AS LI)
01132	LITHIUM, TOTAL RECOVERABLE (UG/L AS LI)
01132	LITHIUM, TOTAL (UG/L AS LI)
01136	RUBIDIUM, SUSPENDED TOTAL (UG/L AS RB)
01136	RUBIDIUM, SUSPENDED (UG/L AS RB)
01146	SELENIUM, SUSPENDED TOTAL (UG/L AS SE)
01146	SELENIUM, SUSPENDED (UG/L AS SE)
01150	TITANIUM, SUSPENDED TOTAL (UG/L AS TI)
01150	TITANIUM, SUSPENDED (UG/L AS TI)
01161	ZIRCONIUM, SUSPENDED TOTAL (UG/L AS ZR)
01161	ZIRCONIUM, SUSPENDED (UG/L AS ZR)
01170	IRON, RECOVERABLE FROM BOTTOM MATERIAL (UG/G AS FE)
01170	IRON, TOTAL IN BOTTOM MATERIAL (UG/G AS FE)
01505	ALPHA, SUSPENDED TOTAL (PCI/L)
01505	ALPHA, SUSPENDED (PCI/L)
01506	ALPHA, SUSPENDED TOTAL, COUNTING ERROR (PCI/L)
01506	ALPHA, SUSPENDED, COUNTING ERROR (PCI/L)
01516	GROSS ALPHA RADIOACTIVITY, SUSPENDED TOTAL (PCI/L AS U NATURAL)
01516	GROSS ALPHA RADIOACTIVITY, SUSPENDED (PCI/L AS U NATURAL)
01517	GROSS ALPHA RADIOACTIVITY, SUSPENDED TOTAL (PCI/G AS U NATURAL)
01517	GROSS ALPHA RADIOACTIVITY, SUSPENDED (PCI/G AS U NATURAL)
01518	GROSS ALPHA RADIOACTIVITY, SUSPENDED TOTAL (UG/G AS U NATURAL)
01518	GROSS ALPHA RADIOACTIVITY, SUSPENDED (UG/G AS U NATURAL)
03505	BETA, SUSPENDED TOTAL (PCI/L)
03505	BETA, SUSPENDED (PCI/L)
03506	BETA, SUSPENDED TOTAL, COUNTING ERROR (PCI/L)
03506	BETA, SUSPENDED, COUNTING ERROR (PCI/L)
03516	GROSS BETA RADIOACTIVITY, SUSPENDED TOTAL (PCI/L AS CS-137)
03516	GROSS BETA RADIOACTIVITY, SUSPENDED (PCI/L AS CS-137)
03517	GROSS BETA RADIOACTIVITY, SUSPENDED TOTAL (PCI/G AS SR/YT-90)
03517	GROSS BETA RADIOACTIVITY, SUSPENDED (PCI/G AS SR/YT-90)

PARM. CODE	NEW TERMINOLOGY--FIRST LINE OLD TERMINOLOGY--SECOND LINE
03518	GROSS BETA RADIOACTIVITY, SUSPENDED TOTAL (PCI/G AS CS-137)
03518	GROSS BETA RADIOACTIVITY, SUSPENDED (PCI/G AS CS-137)
07010	TRITIUM, SUSPENDED TOTAL (PCI/L)
07010	TRITIUM, SUSPENDED (PCI/L)
07011	TRITIUM, SUSPENDED TOTAL, COUNTING ERROR (PCI/L)
07011	TRITIUM, SUSPENDED COUNTING ERROR (PCI/L)
07014	TRITIUM SUSPENDED TOTAL, COUNTING ERROR (TRITIUM UNITS)
07014	TRITIUM SUSPENDED, COUNTING ERROR (TRITIUM UNITS)
07016	TRITIUM, SUSPENDED TOTAL (TRITIUM UNITS)
07016	TRITIUM, SUSPENDED (TRITIUM UNITS)
07052	CALCIUM 45, SUSPENDED TOTAL (PCI/L)
07052	CALCIUM 45, SUSPENDED (PCI/L)
07053	CALCIUM 45, SUSPENDED TOTAL, COUNTING ERROR (PCI/L)
07053	CALCIUM 45, SUSPENDED, COUNTING ERROR (PCI/L)
07062	IRON 59, SUSPENDED TOTAL (PCI/L)
07062	IRON 59, SUSPENDED (PCI/L)
07063	IRON 59, SUSPENDED TOTAL, COUNTING ERROR (PCI/L)
07063	IRON 59, SUSPENDED, COUNTING ERROR (PCI/L)
07082	RHODAMINE WT, SUSPENDED TOTAL (UG/L)
07082	RHODAMINE WT, SUSPENDED (UG/L)
07102	SELENIUM 75, SUSPENDED TOTAL (PCI/L)
07102	SELENIUM 75, SUSPENDED (PCI/L)
07103	SELENIUM 75, SUSPENDED TOTAL, COUNTING ERROR (PCI/L)
07103	SELENIUM 75, SUSPENDED, COUNTING ERROR (PCI/L)
07122	SILVER 110, SUSPENDED TOTAL (PCI/L)
07122	SILVER 110, SUSPENDED (PCI/L)
07123	SILVER 110, SUSPENDED TOTAL, COUNTING ERROR (PCI/L)
07123	SILVER 110, SUSPENDED, COUNTING ERROR (PCI/L)
07142	SULFUR 35, SUSPENDED TOTAL (PCI/L)
07142	SULFUR 35, SUSPENDED (PCI/L)
07143	SULFUR 35, SUSPENDED TOTAL, COUNTING ERROR (PCI/L)
07143	SULFUR 35, SUSPENDED, COUNTING ERROR (PCI/L)
09505	RADIUM 226, SUSPENDED TOTAL (PCI/L)
09505	RADIUM 226, SUSPENDED (PCI/L)
13505	STRONTIUM 90, SUSPENDED TOTAL (PCI/L)
13505	STRONTIUM 90, SUSPENDED (PCI/L)
13506	STRONTIUM 90, SUSPENDED TOTAL, COUNTING ERROR (PCI/L)
13506	STRONTIUM 90, SUSPENDED, COUNTING ERROR (PCI/L)
22705	URANIUM, NATURAL, SUSPENDED TOTAL (UG/L AS U NATURAL)
22705	URANIUM, NATURAL, SUSPENDED (UG/L AS U NATURAL)
28404	CESIUM 137, SUSPENDED TOTAL (PCI/L)
28404	CESIUM 137, SUSPENDED (PCI/L)
28405	CESIUM 137, SUSPENDED TOTAL, COUNTING ERROR (PCI/L)
28405	CESIUM 137, SUSPENDED, COUNTING ERROR (PCI/L)
28412	CESIUM 134, SUSPENDED TOTAL (PCI/L)
28412	CESIUM 134, SUSPENDED (PCI/L)
28413	CESIUM 134, SUSPENDED TOTAL, COUNTING ERROR (PCI/L)
28413	CESIUM 134, SUSPENDED, COUNTING ERROR (PCI/L)
29633	SCANDIUM 46, SUSPENDED TOTAL (PCI/L)
29633	SCANDIUM 46, SUSPENDED (PCI/L)
29634	SCANDIUM 46, SUSPENDED TOTAL, COUNTING ERROR (PCI/L)
29634	SCANDIUM 46, SUSPENDED, COUNTING ERROR (PCI/L)
39332	ALDRIN, SUSPENDED TOTAL (UG/L)
39332	ALDRIN, SUSPENDED (UG/L)
39342	LINDANE, SUSPENDED TOTAL (UG/L)
39342	LINDANE, SUSPENDED (UG/L)
39353	CHLORDANE, SUSPENDED TOTAL (UG/L)
39353	CHLORDANE, SUSPENDED (UG/L)

PARM. CODE	NEW TERMINOLOGY--FIRST LINE OLD TERMINOLOGY--SECOND LINE
39362	DDD, SUSPENDED TOTAL (UG/L)
39362	DDD, SUSPENDED (UG/L)
39367	DDE, SUSPENDED TOTAL (UG/L)
39367	DDE, SUSPENDED (UG/L)
39372	DDT, SUSPENDED TOTAL (UG/L)
39372	DDT, SUSPENDED (UG/L)
39382	DIELDRIN, SUSPENDED TOTAL (UG/L)
39382	DIELDRIN, SUSPENDED (UG/L)
39392	ENDRIN, SUSPENDED TOTAL (UG/L)
39392	ENDRIN, SUSPENDED (UG/L)
39402	TOXAPHENE, SUSPENDED TOTAL (UG/L)
39402	TOXAPHENE, SUSPENDED (UG/L)
39412	HEPTACHLOR, SUSPENDED TOTAL (UG/L)
39412	HEPTACHLOR, SUSPENDED (UG/L)
39422	HEPTACHLOR EPOXIDE, SUSPENDED TOTAL (UG/L)
39422	HEPTACHLOR EPOXIDE, SUSPENDED (UG/L)
39432	ISODRIN, SUSPENDED TOTAL (UG/L)
39432	ISODRIN, SUSPENDED (UG/L)
39502	AROCLOR, SUSPENDED TOTAL, 1248 PCB SERIES (UG/L)
39502	AROCHOR, SUSPENDED, 1248 PCB SERIES (UG/L)
39506	AROCLOR, SUSPENDED TOTAL, 1254 PCB SERIES (UC/L)
39506	AROCLOR, SUSPENDED, 1254 PCB SERIES (UG/L)
39510	AROCLOR, SUSPENDED TOTAL, 1260 PCB SERIES (UG/L)
39510	AROCLOR, SUSPENDED, 1260 PCB SERIES (UG/L)
39518	PCB, SUSPENDED TOTAL (UG/L)
39518	PCB, SUSPENDED (UG/L)
39533	MALATHION, SUSPENDED TOTAL (UG/L)
39533	MALATHION, SUSPENDED (UG/L)
39543	PARATHION, SUSPENDED TOTAL (UG/L)
39543	PARATHION, SUSPENDED (UG/L)
39573	DIAZINON, SUSPENDED TOTAL (UG/L)
39573	DIAZINON, SUSPENDED (UG/L)
39603	METHYL PARATHION, SUSPENDED TOTAL (UG/L)
39603	METHYL PARATHION, SUSPENDED (UG/L)
39733	2,4-D, SUSPENDED TOTAL (UG/L)
39733	2,4-D, SUSPENDED (UG/L)
39743	2,4,5-T, SUSPENDED TOTAL (UG/L)
39743	2,4,5-T, SUSPENDED (UG/L)
39757	MIREX, SUSPENDED TOTAL (UG/L)
39757	MIREX, SUSPENDED (UG/L)
39763	SILVEX, SUSPENDED TOTAL (UG/L)
39763	SILVEX, SUSPENDED (UG/L)
70299	SOLIDS, RESIDUE AT 110 DEG. C, SUSPENDED TOTAL (MG/L)
70299	SOLIDS, RESIDUE AT 110 DEG. C, SUSPENDED (MG/L)
71895	MERCURY, SUSPENDED RECOVERABLE (UG/L AS HG)
71895	MERCURY, SUSPENDED (UG/L AS HG)
71900	MERCURY, TOTAL RECOVERABLE (UG/L AS HG)
71900	MERCURY, TOTAL (UG/L AS HG)
71921	MERCURY, RECOVERABLE FROM BOTTOM MATERIAL (UG/G AS HG)
71921	MERCURY, TOTAL IN BOTTOM MATERIAL (UG/G AS HG)
80040	GROSS ALPHA RADIOACTIVTY, SUSPENDED TOTAL (UG/L AS U NATURAL)
80040	GROSS ALPHA RADIOACTIVITY, SUSPENDED (UG/L AS U NATURAL)
80060	GROSS BETA RADIOACTIVITY, SUSPENDED TOTAL (PCI/L AS SR/YT-90)
80060	GROSS BETA RADIOACTIVITY, SUSPENDED (PCI/L AS SR/YT-90)

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FACTORS FOR CONVERTING INCH-POUND UNITS TO INTERNATIONAL SYSTEM UNITS (SI)

The following factors may be used to convert the inch-pound units published herein to the International System of Units (SI). This report contains both the inch-pound and SI unit equivalents in the station manuscript descriptions.

Multiply inch-pound units	By	To obtain SI units
	Length	
inches (in)	$2.54x10^{1}$	millimeters (mm)
	$2.54x10^{-2}$	meters (m)
feet (ft)	$3.048x10^{-1}$	meters (m)
miles (mi)	$1.609x10^{0}$	kilometers (km)
	Area	
acres	$4.047x10^{3}$	square meters (m^2)
	$4.047x10^{-1}$	square hectometers (hm^2)
	$4.047x10^{-3}$	square kilometers (km^2)
square miles (mi^2)	$2.590x10^{0}$	square kilometers (km^2)
	Volume	
gallons (gal)	$3.785x10^{0}$	liters (L)
	$3.785x10^{0}$	cubic decimeters (dm^3)
	$3.785x10^{-3}$	cubic meters (m^3)
million gallons	$3.785x10^{3}$	cubic meters (m^3)
	$3.785x10^{-3}$	cubic hectometers (hm^3)
cubic feet (ft^3)	$2.832x10^{1}$	cubic decimeters (dm^3)
	$2.832x10^{-2}$	cubic meters (m^3)
cfs-days	$2.447x10^{3}$	cubic meters (m^3)
	$2.447x10^{-3}$	cubic hectometers (hm^3)
acre-feet (acre-ft)	$1.233x10^{3}$	cubic meters (m^3)
	$1.233x10^{-3}$	cubic hectometers (hm^3)
	$1.233x10^{-6}$	cubic kilometers (km^3)
	Flow	
cubic feet per second (ft^3/s)	$2.832x10^{1}$	liters per second (L/s)
	$2.832x10^{1}$	cubic decimeters per second (dm^3/s)
	$2.832x10^{-2}$	cubic meters per second (m^3/s)
gallons per minute (gal/min)	$6.309x10^{-2}$	liters per second (L/s)
	$6.309x10^{-2}$	cubic decimeters per second (dm^3/s)
	$6.309x10^{-5}$	cubic meters per second (m^3/s)
million gallons per day	$4.381x10^{1}$	cubic decimeters per second (dm^3/s)
	$4.381x10^{-2}$	cubic meters per second (m^3/s)
	Mass	
tons (short)	$9.072x10^{-1}$	megagrams (Mg) or metric tons

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